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### TRACHOMA AMONG NATIVES OF THE NORTHERN TERRITORY OF AUSTRALIA.

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SPECIAL interest in trachoma and its incidence among the natives of the Northern Territory began during 1942 and 1943, when many cases of varying degrees of severity and development were encountered among the natives who attended the 109th Australian General Hospital in Alice Springs. At this time it appeared to be the generally accepted contention that little or no active trachoma existed in Australia.

Surveys were carried out over a number of years, commencing in December, 1944, and continuing till the present year. The early surveys were undertaken for the Director-General of Medical Services of the Australian Military Forces, and detailed reports were sent to Army Headquarters (Walker, 1952). Later surveys were undertaken for the Commonwealth Department of Health, and tabulated reports and full details of findings have been prepared in the Department of Health, Darwin, and referred to the Director-General of Health, Canberra.

### SURVEYS IN 1944.

The main object of the surveys in 1944 was to investigate the true state of affairs in regard to both the incidence and severity of the disease.

In the first series of over 500 subjects examined at Hermannsburg, Arryonga, Haast Bluff, Jay's Creek and Arltunga, 90% were infected with the disease in some stage or other. Many patients presented the disease in a severe form and 7% were blind in one or both eyes as a result of trachoma.

I will quote from the summary appended to the survey in 1944:

The cases examined fell into two main groups. The younger people up to the age of about 30 showed active trachoma in varying degrees of severity manifested by follicles, papillary hypertrophy and hyperæmia of the tarsal conjunctiva and pannus and epithelial infiltration of the cornea. At this stage there is little or no permanent damage to the lids or cornea and no visual impairment. Should a thorough course of treatment arrest the disease at this stage, there would be no serious sequelæ to contend with.

In the older age-group little evidence of active trachoma persists, though there is often acute secondary infection. Present, however, are varying amounts of scarring of the tarsal plates, causing thickening, distortion, entropion and trichiasis. These complications result in extremely painful eyes. The natives show

admirable fortitude and seem to carry on remarkably well, complaining very little.

In a high percentage of cases, concurrently with the cataractization of the lids, advancing opacification and vascularization of the cornea occur causing progressive impairment of vision. A further serious complication is the development of corneal ulcers in the degenerating cornea from the irritation of trichiasis. These, from the lack of efficient treatment, frequently perforate, which is the main cause of total loss of vision in these cases, the end-result being adherent leucoma, anterior staphyloma, or phthisis bulbi.

The five districts examined in this first survey included the four main varieties of social conditions under which the natives in the Northern Territory are found. Hermannsburg is a long-established, well-organized native mission. Arryonga and Haast Bluff are merely ration stations, which had been opened about a year previous to the time of the survey. They are means of making contact with nomadic natives, and are aimed at checking their too hasty migration to town centres. Jay's Creek is a government-controlled native settlement. Aritunga was a newly-opened mission (only six months before the survey) caring for natives who had been moved out of Alice Springs—so they were really natives who had been employed in the town.

#### FURTHER SURVEYS.

A very different picture was presented during surveys in other areas, notably in the Roper River district and on Groote Eylandt. Here the percentage incidence was almost as high (up to 83.7%), but the course of the disease was much less severe and it rarely resulted in any serious visual impairment. Roper River and Groote Eylandt are mission stations in the Gulf of Carpentaria district far removed from any township or other white contact (Figure VI).

In the younger patients the acute stage of the disease appears just as intense as in the Alice Springs area. Many cases of the florid type were seen. Among the older age groups, however, in most cases the only evidence of pre-existing trachoma comprised fine scarring in the tarsal conjunctiva, crescent-shaped areas of slight degeneration at the limbus above, with or without Herbert pits, and very attenuated corneal vessels.

Here was an intriguing problem. As the acute stage seemed identical in the two groups, how could the difference in the subsequent course of the disease be explained? Were there two different strains of virus? Did the susceptibility of the natives differ in the two groups? Or was the difference in the development of the disease due to extrinsic factors, such as secondary infection, atmospheric or climatic conditions of heat, dryness, wind, dust, etc.?

From time to time natives have been examined from all districts throughout the Territory. Detailed charts of percentage incidence according to the various age groups and disease stages have been prepared in the Department of Health, Darwin. Limitations of space prevent their detailed presentation here. A composite table showing the main facts has been drawn up (Table I).

#### CAUSATIVE ORGANISM OF TRACHOMA.

Before we look more closely at the clinical aspects of the disease, let us see briefly what can be said about the virus provisionally named *Chlamydozoon trachomatis*, which is becoming universally accepted as the cause of the disease, and which has, indeed, been included in the definition of the disease by the Expert Committee on Trachoma of the World Health Organization in their second report (1956).

#### Inclusion Bodies.

There is now considerable literature concerning the nature of this causative organism. Halberstaedter and von Prowazek (1907) first described the cytoplasmic inclusions characteristically found in the early stage of the disease.

These epithelial-cell inclusions are believed to consist of virus particles, with other material either formed by the virus or produced by the parasitized cell in response to the virus.

Thygeson, Proctor and Richards (1934) maintain that the aetiological agent is a virus of the large particle size and a member of the psittacosis-lymphogranuloma group. This would place the infective organism tentatively between the rickettsiae and the viruses.

Lindner (1910) first described possible developmental phases in the life history of the inclusion bodies. In the early stages the inclusion body is composed of larger particles ( $0.6\mu$  to  $1.6\mu$ ) staining dark blue with Giemsa mixture. These are called "initial bodies". They are associated with a basophilic matrix. This was called

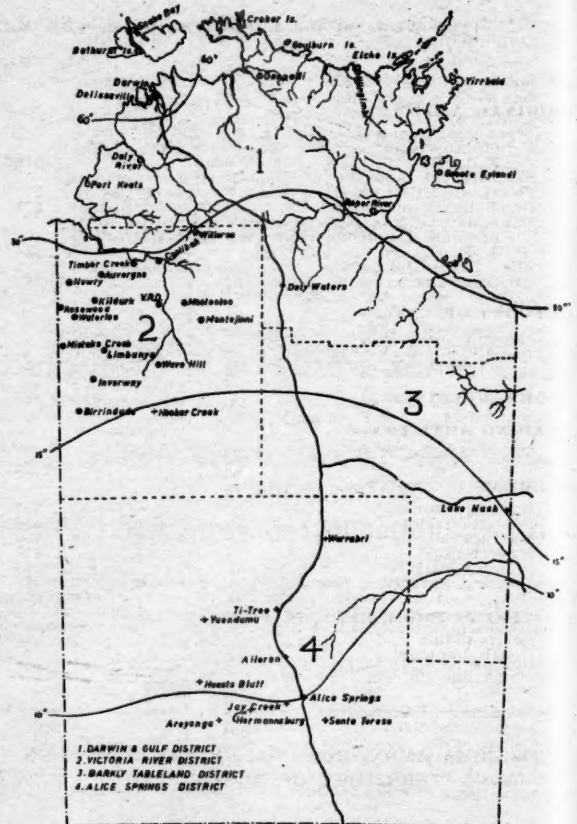


FIGURE VI.

Map showing localities mentioned in Table I, in relation to geographical districts and isohyets. Geographical divisions are represented by interrupted straight lines. Isohyets are shown as continuous curved lines.

"plastin" material by Halberstaedter. Later, by some form of fragmentary process, these give rise to the smaller particles, called "elementary bodies" ( $0.25\mu$ ), which take on a similar stain to that of nuclei with Giemsa mixture—that is, magenta red. Clusters of these dust-like granules are often seen in the cytoplasm massed around the nucleus in one segment, the appearance suggesting that of a cloak; hence the name "Chlamydozoon" (Figure I).

These observations have in general been confirmed by other workers. The maturation process seen in the inclusion bodies of inclusion conjunctivitis adds indirect support. A similar sort of cycle is described in the inclusion bodies of psittacosis and lymphogranuloma inguinale.

Histochemical methods have demonstrated the presence of glycogen in the matrix in which the virus particles are found (Dark, 1955).

TABLE I.

Showing the Percentage Incidence and Severity Index of Trachoma for the Various Localities in the Geographical Districts of the Northern Territory.

Settlement and Geographical District.	Number Examined.	Number Affected.	Percentage Incidence. <sup>1</sup>	Result.			Severity Index.
				Active, No Scarring. (Stage A.)	Healed with Good Sight. (Stage B.)	Healed with Impaired Sight. (Stages C and D.)	
I. Darwin and Gulf area :							
Snake Bay <sup>2</sup> .. .. .	86	8	9.3	7	1	0	0
Goulburn Island <sup>3</sup> .. .. .	134	56	41.8	33	23	0	0
Bathurst Island <sup>4</sup> .. .. .	250	0	0	0	0	0	0
Elcho Island <sup>5</sup> .. .. .	211	152	72.0	83	62	7	10.1
Milingimbi <sup>6</sup> .. .. .	287	238	82.9	150	78	10	11.4
Yirrkala <sup>7</sup> .. .. .	285	234	82.1	86	134	13	8.8
Oenpelli <sup>8</sup> .. .. .	130	51	39.2	13	34	4	10.5
Darwin <sup>9</sup> .. .. .	291	83	28.5	27	55	1	1.8
Dellisaville <sup>10</sup> .. .. .	86	19	22.1	4	14	1	6.7
Daly River <sup>11</sup> .. .. .	49	19	39.0	11	8	0	0
Groote Eylandt <sup>12</sup> .. .. .	308	228	74.2	122	97	9	8.5
Port Keats <sup>13</sup> .. .. .	121	48	39.7	40	8	0	0
Roper River <sup>14</sup> .. .. .	222	186	83.7	103	76	7	8.4
Total .. .. .	2460	1322	53.7 <sup>5</sup>	679	590	52	8.1
II and III. Victoria River District, Kimberley and Barkly Tableland areas :							
Willeroo <sup>15</sup> .. .. .	17	10	58.8	2	7	1	12.5
Coolibah <sup>16</sup> .. .. .	22	20	90.9	6	12	2	14.3
Timber Creek <sup>17</sup> .. .. .	23	12	52.1	6	6	0	0
Auvernne <sup>18</sup> .. .. .	60	34	56.6	26	8	0	0
Newry <sup>19</sup> .. .. .	41	21	51.9	13	7	1	12.5
Kildurk <sup>20</sup> .. .. .	21	14	66.6	10	4	0	0
Moolooloo <sup>21</sup> .. .. .	18	17	94.4	9	7	1	12.5
Victoria River District <sup>22</sup> .. .. .	145	99	68.2	72	22	5	18.5
Montejenni <sup>23</sup> .. .. .	16	16	100.0	4	10	2	16.7
Rosewood <sup>24</sup> .. .. .	23	12	52.1	6	6	0	0
Waterloo <sup>25</sup> .. .. .	34	22	64.7	9	13	0	0
Limbunya <sup>26</sup> .. .. .	46	33	71.7	13	20	0	0
Wave Hill <sup>27</sup> .. .. .	199	98	49.2	37	45	15	25.0
Mistake Creek <sup>28</sup> .. .. .	21	11	52.3	4	5	2	28.6
Inverway <sup>29</sup> .. .. .	61	34	55.7	17	17	0	0
Birindudu <sup>30</sup> .. .. .	33	16	48.4	8	6	2	25.0
Lake Nash <sup>31</sup> .. .. .	53	38	72.0	22	14	2	12.5
Total .. .. .	833	507	60.9	264	209	33	13.6
IV. Alice Springs area :							
Hooker Creek <sup>32</sup> .. .. .	107	36	33.5	18	3	15	83.3
Warrabri <sup>33</sup> .. .. .	231	188	81.0	83	81	24	22.9
Ti-Tree <sup>34</sup> .. .. .	10	10	100.0	1	6	3	33.3
Yuendumu <sup>35</sup> .. .. .	267	158	58.0	45	75	38	29.7
Alleron <sup>36</sup> .. .. .	61	58	95.0	20	28	10	26.3
Haast Bluff <sup>37</sup> .. .. .	401	323	81.0	144	124	55	30.7
Santa Teresa <sup>38</sup> .. .. .	77	75	97.4	49	12	14	53.8
Jay Creek <sup>39</sup> .. .. .	157	138	87.9	56	18	64	78.0
Hermannsburg <sup>40</sup> .. .. .	194	176	90.7	107	27	42	60.9
Areyonga <sup>41</sup> .. .. .	78	60	76.9	48	3	9	75.0
Total .. .. .	1583	1222	77.2	571	377	274	42.1
Grand total for Northern Territory .. .. .	4876	3051	62.6	1514	1176	359	23.4

<sup>1</sup> If children aged under one year were omitted from these figures, the percentage incidence would be from 5% to 10% higher in each case.<sup>2</sup> Government-controlled settlement.<sup>3</sup> Mission station.<sup>4</sup> Natives resident in towns.<sup>5</sup> This figure would be about 60% if the unusual conditions on Bathurst Island were disregarded.<sup>6</sup> Cattle station.<sup>7</sup> Hooker Creek, though geographically situated in the Victoria River district, is included in the Alice Springs district, because the majority of the natives there have migrated north from areas situated some hundreds of miles to the south.

Smears have been taken from natives from various parts of the Territory and stained in the Darwin Laboratory, and photomicrographs of the inclusion bodies have been taken (Figures I to V). Further investigations are now in progress in Darwin, to determine more accurately the incidence and types of inclusion bodies, as well as the associated bacterial flora in smears taken from patients with active uncomplicated trachoma (Mann and Crotty). Also attempts are being made to isolate the trachoma virus on tissue cultures of conjunctival epithelium and standard cell media (McLean).

It now seems most probable that trachoma is a disease primarily of the conjunctival and corneal epithelial cells. The follicular reaction in the subepithelial tissues would seem to be the result of a toxin produced by the virus. The actual virus probably never directly involves the subepithelial tissues.

Hence to obtain slides of the infected cells showing their inclusion bodies, it is preferable to use thin smears of the palpebral epithelium rather than deep scrapings. These may be obtained by drawing a celluloid strip one centimetre wide with bevelled corners across the surface of the



everted upper eyelid. In this way a wider area of superficial epithelial cell is obtained, with a correspondingly smaller proportion of mesodermal elements.

#### CHARACTERISTICS OF THE DISEASE AS IT OCCURS IN THE NORTHERN TERRITORY.

Abu-Jaudeh (1953), working in Lebanon, suggests that trachoma may be a more generalized disease. This is supported by the inclusion bodies found in other mucous membranes in many trachoma patients who have been investigated. Certainly a chronic nasal discharge is a very constant feature among native children in the Northern Territory. The fact that sulphonamide drugs are more effective when given by mouth than when applied locally would fit in with this concept of the disease. There is scope for further research in this direction.

#### Acute Stage.

As in other areas where trachoma is endemic, so in the Northern Territory the disease has as a rule an insidious onset, and begins very early in life. At the age of two or three years a very high percentage of children already show obvious signs of the disease—yellowish-white follicles, papillary hypertrophy, hyperæmia and swelling. There are usually accompanying signs on the upper limbal part of the cornea—bluish-white, raised follicles, vascularization and infiltration.

However, there is evidence that the disease can at times have a sudden onset. I recall one case in particular, that of a trained nurse, who had been nursing for only a few months in the native ward of a Northern Territory hospital. This patient showed classical signs of the disease and the onset was very sudden. Other similar cases have been observed. Also, experimentally induced trachoma in human volunteers practically always has an acute onset.

In the acute stage of the disease follicles alone are, of course, not diagnostic of trachoma, for they are produced by other causes. However, their distribution and appearances are helpful. Trachoma follicles are characteristically pale and necrotic and are seen first in the upper fornix or on the tarsal plate. It is only when some scar formation is evident from the healing of the follicles that trachoma follicles can be distinguished with any certainty from those of follicular conjunctivitis, infectious folliculosis and inclusion blenorhœa. Absence of preauricular lymphadenopathy is also a differentiating sign from infectious folliculosis.

The other distinguishing diagnostic sign is pannus, made up of infiltration of the corneal epithelium and the spread of vessels from the normal loops at the upper limbus.

Renald Ching (1954) expresses the situation admirably when he states that follicles, scars and pannus constitute the trachoma triad, and that at least two of these signs must be present for diagnosis. The presence of all three makes the diagnosis certain; but if only two are present, this constitutes a reasonable certainty.

In examining the cornea for pannus we give special attention to the limbal vascular loops. There is considerable variation in the normal limbus. At times the terminal loops may extend further onto the cornea than is usually the case. Some extension of regular loops is not abnormal (slipped limbus).

Down-sprouts, however, either just perceptible or extending a number of millimetres into the cornea, are always abnormal and appear early in the disease.

Corneal infiltration accompanies the vascular penetration. These infiltrates may be slightly ahead of the vessels, indicating an early progressive stage of the disease. The infiltrations may be more or less localized to the lines of the vessels. When healing is in progress the infiltrations are found only some distance back along the line of the vessels. When the condition is becoming quiescent there may be no infiltrates and the vessels themselves appear practically empty.

In conformity with the method of classification suggested by Ida Mann, I group cases of this type as Stage A—active

and infectious. This will include Trachoma I, Trachoma II and early Trachoma III in the classical description of MacCallan, which may conveniently be summarized here.

**Trachoma I.** This immediately follows infection. The conjunctiva covering the upper tarsal plate becomes rough, and may or may not present semi-transparent, whitish, almost non-vascular follicles or granulations. They may be present also in the upper fornix—demonstrated by double eversion of the upper lid. Trachoma I is infectious. Pannus also begins in Trachoma I, producing vascularization and infiltration in the upper part of the cornea.

**Trachoma II.** This is characterized by excessive follicle formation and the presence of slight discharge. Trachoma I is practically symptomless, but in Trachoma II there are discomfort, some photophobia, slight discharge and the suggestion of ptosis from oedema of the lids. (In my experience the degree of follicular formation varies, and excessive follicular formation is not seen in every case.) The subdivisions in Trachoma II, made by MacCallan according to the presence of associated conditions—spring catarrh, chronic gonococcal conjunctivitis and hemophilus infection—are not important in Northern Territory trachoma, because the occurrence of these three diseases is very infrequent.

**Trachoma III.** In early Trachoma III, commencing cicatrization of the follicles is seen.

In more summary form, MacCallan's classical divisions are as follows: Trachoma I, trachoma at onset; Trachoma II, established trachoma (including florid forms); Trachoma III, cicatrizing trachoma; Trachoma IV, cicatrized or healed trachoma.

The condition in the acute stage (Stage A) varies in severity. For classification it is designated as mild, medium, severe and florid. I do not think you can judge the subsequent course of the disease by the severity of the reaction in the acute stage. There seem to me just as many severe and florid cases in the Roper River-Groote Eylandt area as in Alice Springs district.

The examination of smears for inclusion bodies is more likely to give positive results when the smears are taken from patients with the florid condition, in which large, soft, moist follicles are seen pushed close together.

Patients in the transition phase are designated as Stage A-B, which indicates the transition from Stage A to later stages of cicatrization (Stages B, C and D). That is to say, Stage A-B is used to describe cases in which follicles and scarring are both present in a significant degree.

Stage A is the stage of the disease usually found in infancy and throughout childhood. Not until early adult life do patients pass from this stage into one or other of the two possible lines of development. These will now be considered in turn.

#### Subsequent Development.

##### Benign Form.

First, the disease may run a benign course. In such cases, as the disease progresses, scarring develops, replacing the follicles, and the condition gradually becomes quiescent, criss-crossed fine white lines of scar tissue appearing on smooth undistorted tarsal plates. Meanwhile the follicles in the cornea have changed to discrete pits, and the corneal vessels have become thinner, carrying less and less blood in their lumen.

The degree of vascularization is measured and conveniently recorded as the number of millimetres the tips of the vessels have penetrated from the limbus.

Infiltration ceases, leaving few residual signs or a crescent-shaped area of degeneration in the upper part of the cornea. This crescent-shaped area of degeneration close to the limbus, which often appears during healing in this stage, has a sharply defined border, which encroaches one or two millimetres on the cornea. Within it fine atrophic vessels can usually be seen.

It is within the area of the crescent that the marginal fossettes of Herbert (Herbert's pits) are found. These are



clear, circular, discrete, scar areas, about one millimetre in diameter, occurring singly or as many as eight in one cornea. Their appearance is striking and unmistakable, and confirms beyond question the diagnosis of healed trachoma in some cases when all other evidence may be doubtful.

Sometimes the tarsal follicles in healing become inspissated and calcified, remaining as conjunctival concretions.

Cases in which such signs as these are manifested are grouped together as Stage B—healed with good sight, and no follicles present.

The surveys show that this type of trachoma accounts for the highest percentage of cases in certain districts, notably in the Roper River-Groote Eylandt area and in the Darwin and Gulf district generally, where the disease incidence is nevertheless high. This is also the form of trachoma reported to be common in China and referred to as the Mongolian form or *trachome pur*.

In my experience there is no means of telling in the early acute stage (Stage A) which patients, if untreated, will run this benign course of spontaneous healing, with little or no damage to the eye or impairment of vision. Even if this could be estimated, it would, of course, not be a reason for leaving such patients untreated, because for the eradication of the disease it is most important to shorten the acute infective period as much as possible, and so to put an end to reservoirs of infection in the community.

In any particular area the percentage rate of incidence in those of the population aged under twenty or twenty-five years (cases will be practically all Stage A) will give a valuable picture of the infectivity at the time of the survey.

The incidence of Stages B, C and D in the older group of patients represents a history of infectivity in a previous period.

If in a survey practically all patients are in Stage A and include adults as well as children, the disease must have been recently introduced in that area.

#### Severe Form.

In other cases, as the disease progresses, more advanced signs appear; scarring develops more densely in the upper lid, causing distortion and buckling of the tarsal plate, going on to the formation of cicatricial entropion more or less pronounced, with associated trichiasis often in a very severe form. In some cases chronic dacryocystitis occurs, and less commonly symblepharon.

Pannus visible to the naked eye is present in all cases of this type and may involve the entire cornea, with large vessels coursing to the centre. Ulcers develop repeatedly in the degenerated cornea, irritated by the trauma from intumed lashes and with secondary infection commonly a complication. Dense scars of previous ulcers, now healed, often with calcareous degeneration, are also seen.

Not infrequently the ulcers perforate, when more serious sequelae are produced—adherent leucoma, anterior staphyloma, keratectasia and *phthisis bulbi*. The condition in this stage thus follows the classical description of the disease, progressing from early adult life and continuing to the grave, passing through the gamut of complications as described and causing untold pain and suffering accompanied by progressive impairment of vision and not infrequently blindness.

This corresponds to late Trachoma III and Trachoma IV in MacCallan's classical description—the state of complete cicatrization, which is non-infective as far as trachoma is concerned; but secondary infection is very commonly present, and at times also dacryocystitis.

These cases comprise the remaining two stages (Stages C and D) in Ida Mann's classification. They form essentially one group containing all the adult patients in whom the condition runs a severe course, in contradistinction to those in which it follows a benign course with few ill

effects. These cases of the severe type may be subdivided according to the clinical and economic picture, Stage C being "healed with impaired sight", Stage D being "industrially blind from trachoma".

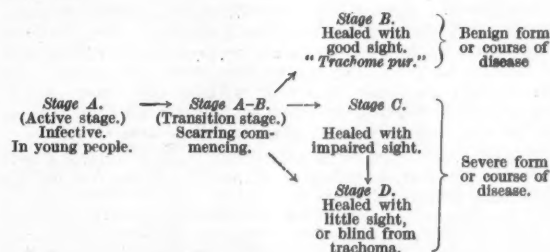
Stage C comprises cases in which there has been considerable scarring and opacification of the cornea causing serious impairment of vision. It is possible for some of these cases to pass into the next stage as the result of corneal ulceration and secondary infection.

Stage D includes all cases in which severe corneal complications and trichiasis, entropion, corneal ulcers, anterior staphyloma, *phthisis bulbi*, etc., have occurred and in which vision is permanently lost almost or completely—that is, the patients are blind from the industrial point of view.

A high percentage of the trachoma that occurs in Central Australia and in the Alice Springs and Tennant Creek district is of this severe form, which corresponds to the classical, severe, Egyptian type described by MacCallan—a serious, terrifying, disabling disease producing extensive pannus, cicatricial entropion, and trichiasis, often further complicated with corneal ulceration and at times perforation of the globe.

#### Classification.

The progress of the disease in its two forms may be represented in a summary manner by the following diagram:



When the word "stage" is used in this classification it is not meant to convey that all cases pass progressively through every stage from A to D. The disease selects one of two courses. If a particular case follows the benign course, it passes through Stage A in childhood to the transition Stage A-B in early adult life, and then the condition is healed and quiescent in Stage B. Should the severe course be followed in another case, the progress will be identical up to Stage A-B. Then from this transition stage of scarring it will pass to Stage C or D, or through C to D.

While the divisions described by MacCallan express accurately the phases in the pathological course of the severe form of the disease, this system does not make a clear stage distinction between the two different courses that the disease may follow, and hence the actual state of the patient. The more clinical method of classification suggested by Ida Mann does this, and fulfils our statistical requirements very well. Also, this has made it possible for all tables so far compiled from trachoma surveys in Australia to follow a uniform pattern.

The four clinical categories in this classification may now be summarized, as follows:

Stage A is the active and infectious stage. Follicles are present in palpebral conjunctiva, and perhaps a few scars are commencing. There are pannus vessels and epithelial infiltration in the cornea. As the scarring becomes more obvious and follicles diminish, this stage passes into the next. Transition cases may be marked Stage A-B. According to severity, cases may be marked mild, medium, severe or florid.

Stage B comprises cases in which the condition has healed, with little or no impairment of vision. Follicles are no longer present. Mild to moderate scarring is

present, but no lid distortion. Pannus vessels do not encroach on the pupillary area. Vision is not impaired.

In Stage C also the condition is healed, but with some impairment of vision. Pannus vessels and scars involve the pupillary area. There may be some lid distortion.

Stage D represents a poorer end-result than Stage C. Entropion, trichiasis, corneal scarring or some more serious complications impair the vision to such an extent that the patient is "too blind to perform any work for which eyesight is essential".

In still more summary form these stages are as follows: Stage A, active; Stage A-B, transition from Stage A to later stages; Stage B, condition healed, with good sight; Stage C, condition healed with impaired sight; Stage D, patient blind from trachoma.

#### Severity Index.

In order to arrive at an accurate idea of the severity of the disease as it occurs in any particular area or in a particular age group in an area, what I term the severity index may be computed. It is the ratio of the number of cases in Stages C and D to the total number of cases in Stages B, C and D (that is, the total number of cases in which the condition is healed or quiescent). This figure is conveniently expressed as a percentage, and is a very simple way of expressing the severity of the disease in an area, and comparing it with what pertains in other districts (Table I).

Trachoma is almost invariably bilateral, and furthermore it is very rarely that one eye has to be placed in a different stage from its fellow. The stage or progress of the disease is usually very similar in the two eyes. Of course, one cornea may perforate before or without the other; but if one eye is so severely affected as to perforate, the disease in the other eye is almost always severe also.

In order to record clinical findings rapidly during a field survey, a numerical table of signs was drawn up on the following lines:

#### Lids (L.):

L1 = Follicles. L2 = Papillae proliferation or hypertrophy. L3 = Hyperemia. L4 = Swelling. L5 = Tarsal scarring. L6 = Tarsal thickening. L7 = Tarsal distortion. L8 = Entropion. L9 = Trichiasis.

#### Cornea (C.):

C1 = Infiltration. C2 = Opacities. C3 = Vascularization. C4 = Ulceration. C5 = Crescentic degeneration. C6 = Herbert's pits.

#### Sequelae (S.):

S1 = Adherent leucoma. S2 = *Phthisis bulbi*. S3 = Anterior staphyloma. S4 = Symblepharon. S5 = Dacryocystitis.

These findings would be indicated on the card as L 1, 2, 3, C 1, or L 5, 6, 7, C 5, 6, S 5, or whatever combination may occur. With these findings available from each patient, it is possible later to arrange them in any system of classification.

This is more detailed than the method of notation suggested by the World Health Organization, in which C indicates "scars", F "follicles", P "papillae", I "infiltration", and V "vessels".

#### ENVIRONMENT OF NATIVES.

During the various surveys, attention has been directed towards any condition of environment that may be of importance in elucidating the problems of high incidence and varying severity of the disease in the Northern Territory.

#### Geographical Districts.

The surveys have been carried out throughout the whole area of the Northern Territory, and a representative number of subjects have been examined from the four main geographical and climatic districts into which the Territory is divided, as follows: (i) Darwin and the Gulf of Carpentaria district, (ii) the Victoria River district and the Kimberley district of the Territory, (iii) Tennant

Creek and Barkly Tableland, (iv) Alice Springs and Central Australia district (Figure VI).

I will not go into all the characteristics of these areas; but I can say that the Darwin and Gulf district is the most tropical, more affected by the monsoons, with a rainfall up to 60 inches per year, with six months of high humidity, and with temperatures very rarely over 100° F. The rainfall drops rapidly as one passes south through the Victoria River district and the Barkly Tablelands (which will be grouped together for the purposes of this survey), till it falls below 10 inches per year in the Alice Springs district, with extremes of temperature up to 115° F. in the summer and low temperature in the winter months. In this Central Australian district the atmosphere is excessively dry, winter and summer. Powerful winds sweep the country. Dust and bush flies are invariably present.

From the position of the isohyets (Figure VI) it can be seen that all the localities investigated in the Darwin and Gulf district lie above the 30-inch isohyet and have an annual rainfall between 30 and 60 inches. On the other hand, all the places visited in the Alice Springs area lie below the 15-inch isohyet and have an annual rainfall between 5 inches and 15 inches, while the places in the intermediate districts (Victoria River and Barkly Tablelands) are transitional in this respect and have an annual rainfall between 15 and 30 inches.

It is interesting to note the average annual evaporation figures for these three areas, as they give an accurate indication of the drying properties of the respective atmospheres. The figure for the northern (Darwin) district is 80 to 90 inches, for the intermediate, transitional districts 100 inches, and for the Central Australian district 110 inches.

Other relevant climatic features of the three areas under consideration can be gathered from Table II, in which Darwin is taken as typical of the northern district, Daly Waters of the intermediate district, and Alice Springs of the Central Australian district.

TABLE II.  
Climatic Data for Darwin, Daly Waters and Alice Springs.

Climatic Factor.	Darwin.	Daly Waters.	Alice Springs.
Total annual rainfall ..	60 inches.	26 inches.	9.93 inches.
Number of rainy days ..	100	55	31
Intensity of rainfall (rain per wet day) ..	0.60 inch.	0.47 inch.	0.32 inch.
Mean maximum temperature ..	90.9° F.	94.0° F.	82.0° F.
Mean minimum temperature ..	74.3° F.	66.7° F.	55.3° F.
Mean temperature, hottest month (November) ..	85.9° F.	88.3° F.	82.6° F. (January)
Mean temperature, coolest month (July) ..	77.4° F.	68.8° F.	52.9° F.
Normal mean relative humidity (driest month) ..	59% (July)	39% (September)	30% (October)
Normal mean relative humidity (most humid month) ..	80% (February)	67% (February)	54% (June)

<sup>1</sup>The mean maximum daytime temperature for the hottest month in Alice Springs is 95.3° F. The large diurnal variation (25.4° F.) is responsible for the relatively low figure (82.6° F.) for the 24 hour period. In Darwin for the hottest month, the mean maximum daytime temperature is only 89.2° F.; but the relatively small diurnal variation (8.2° F.) results in a relatively high figure (85.9° F.) for the 24 hour period.

#### Social Groupings.

Also in the surveys natives have been examined in all types of social organizations, which fall under the following main headings: (i) on missions; (ii) on cattle stations; (iii) on Department of Native Welfare settlements; (iv) in the semi-nomadic state, occasionally in contact with one of the above-mentioned groups; (v) in employment in towns.



### General Conditions.

During visits to any centre observations have been made and recorded concerning the general living conditions, special attention being given to the following points: (i) type of accommodation—crowding, dormitories or nomadic type; (ii) water—quantity, availability, use; (iii) flies; (iv) general sanitation; (v) type of occupation—males and females (incidence is slightly higher in females); (vi) amount of contact with whites; (vii) condition of schools, when applicable; (viii) cleanliness or otherwise of natives—washing facilities, appearance of natives; (ix) any special feature noted peculiar to the centre.

### ANALYSIS OF FINDINGS.

A review of the detailed findings reveals that there are two distinct problems: (a) a consideration of the factors that may influence the spread of the disease and are concerned with its high incidence in the Northern Territory; (b) an estimation of the factors that influence the severity of the disease and determine whether it will run a comparatively mild course (*trachoma pur*) or whether severe and disabling signs will appear, producing much pain and frequently ending in blindness.

### High Incidence of the Disease and Mode of Infection.

The disease can certainly be conveyed by direct transference of trachomatous conjunctival discharge from a diseased eye to a healthy one. It is not surprising, then, that the Australian aboriginal people, living as they do in close personal contact with each other, and having little or no idea of personal cleanliness and hygiene, should manifest a high incidence rate of trachoma.

The chief manner of transmission is most likely the direct one—contact of the human hand conveying the infected discharge. Mothers would have ample opportunities of handing on the disease to their offspring in this manner very early in life. Also older children would infect the younger ones by direct contact.

The bush fly, *Musca vetustissima*, is very prevalent in many parts of the Territory, especially in the dry districts of Central Australia. The inner canthus seems to hold a special attraction for these flies; once there, they are very difficult to dislodge, and even when disturbed they return with great persistence. Natives, especially the children, disregard them completely, and often clusters of them may be seen in undisputed possession of the site of predilection.

The flies may quite well play a part in spreading the disease by direct contact of their legs and proboscis with the trachomatous discharge; but as we have seen, ample opportunity of contact with children's eyes is provided by the mother and the other children. Thus there is no appreciable difference in the incidence rate between areas where the bush fly abounds and areas relatively fly-free.

However, bush flies may play a more important part in the repeated spread of secondary infection in both children and adults. The fact that flies are more prevalent in those areas in which secondary infection is more common and trachoma presents its more severe manifestations, would seem to favour this contention.

Attention to personal cleanliness would appear to be the only explanation of the low incidence of the disease among Europeans in the areas under survey. This would also explain the decrease in the disease incidence in England and in many other parts of Europe in recent decades. A racial immunity has never been satisfactorily demonstrated.

Among the natives of the Northern Territory there is some slight variation in the rate of incidence in different districts. The general tendency is for the incidence to be higher in the areas of lesser rainfall. There is evidence that these variations can be correlated with the standards of hygiene and with the availability of water and its use. Variations in other factors do not especially affect the incidence.

Thus the explanation of the high incidence of the disease in the natives of the Territory would seem to be the close

personal contact in their way of life, with carelessness in regard to personal cleanliness, and lack of ordinary hygiene seen in the use of common blankets, washing water, etc.

Nomadic tribal natives would appear at first sight to be at an advantage, from the hygienic point of view, over the more settled ones, because they stay only a short time in a camp before moving on to another, and refuse disposal presents no problem. The group simply moves along and leaves all rubbish behind. This advantage would certainly apply to diseases such as hookworm. In trachoma the advantage may be more apparent than real. The source of infection is carried with them. The close personal contact remains the same—perhaps it becomes closer for reasons of warmth, etc. The availability of water will vary greatly while they are on walkabout; flies will be always with them. The few blankets, towels or their equivalent will be common property. So I would say that the nomadic tribes would have no real advantage in this connexion. When it comes to the possibility of really efficient treatment, they are, of course, at a serious disadvantage, and will eventually present the most difficult problem in the eradication of the disease.

While grouping into the settled areas may form reservoirs of the disease if this is untreated, these same conditions present convenient centres of treatment readily available for attacking the disease if full advantage is taken of them.

### Factors that may Determine the Severity of the Disease.

The factors that may determine the severity of the disease can be divided into two categories, intrinsic and extrinsic.

#### Intrinsic Factors.

*Different Strains of Virus.*—It has been suggested that the two forms of the disease (mild and severe) which I have described are caused by two different strains of the trachoma virus.

In the Northern Territory perhaps a case could be made for the contention that the two forms of the disease arose from two different sources—perhaps from the Afghans in Central Australia, and from the Macassars or the Chinese in the north.

There were in fact many Afghan camel-drivers around Alice Springs. In the north, Macassars in their prows had much contact with coastal natives, and large numbers of Chinese worked on the North Australian Railways. But there is no real evidence to support this contention and I do not favour it.

From the distribution of the disease in the Northern Territory as revealed by these surveys, it does not seem possible to trace the manner in which the disease entered the area. A most unexpected finding was the complete absence of the disease among the numerous natives on Bathurst and Melville Islands. (It is noteworthy that during 1956 seven cases were found at Snake Bay, Melville Island, some months after two natives with trachoma had been transferred from the mainland.)

*Immunity.*—A partial racial immunity has been suggested as an explanation of the mild type. There is no racial distinction between the natives of the districts under consideration. At the most it can be said that the natives in the more northern districts have a slightly better physique, usually attributed to the more favourable environmental conditions in which they live, especially in regard to abundance of food and less severe climate.

The results of the Northern Territory surveys would seem to indicate that the varied severity of the manifestations of trachoma is not determined by such intrinsic factors as different strains of virus or different degrees of immunity among the sufferers.

#### Extrinsic Factors.

A more satisfactory explanation of the two types of the disease is that the same strain of virus in equally sus-



ceptible people can produce a mild or severe form, according to whether or not certain other extrinsic factors are present.

Ronald Ching (1954) has suggested that the uncomplicated disease is mild, insidious, frequently self-limiting, not highly infectious and comparatively harmless (*trachome pur*). This concept of the disease fits in very well with the finding of the surveys carried out in the Northern Territory. It would correct the notions of trachoma gleaned from descriptions of the disease as it occurs in Egypt, where one is prone to think of trachoma as invariably following a severe course and ending after much suffering in blindness. For it seems that, in certain areas at least, the disease becomes self-limiting and ends in a spontaneous cure, unless it is complicated by certain extrinsic factors.

The surveys would suggest that the most important extrinsic factors complicating the issue are repeated secondary infections by various organisms, and climatic factors irritating to the conjunctiva and cornea, especially the excessive drying effects of low humidity, heat and wind aggravated by dust.

**Secondary Infection.**—The importance of repeated secondary infection is becoming more universally recognized as a determining factor in converting the comparatively harmless uncomplicated trachoma (*trachome pur*) to a serious and terrifying disease with disabling end-results. Experiences in the Territory would tend to confirm this outlook. It has already been pointed out that the prevalence of flies fairly closely follows the incidence of the severer manifestations of trachoma and the greater frequency of secondary infection. It is not unreasonable to assume that flies may play a part in the repeated transmission of secondary infections. It is difficult to form an accurate idea of the prevalence of secondary infection from one solitary survey of an area, for of course the bouts of secondary infection come and go. It is only after residence in an area for some time—months or years—that a true estimation of the frequency can be made. From my experiences I can state that such infections are far more common in the Alice Springs and Tennant Creek areas than in the Darwin area.

**Climatic Conditions.**—Although there does not seem sufficient evidence to correlate geographical position with the percentage incidence of trachoma, yet there does seem to be a definite connexion between geographical position (and its associated climatic difference) and the type of disease, serious or mild, that predominates throughout the areas in question.

The deleterious effect of excessive drying on the conjunctiva and cornea of normal eyes in Central and North Australia has previously been investigated (Flynn, 1944). It was then pointed out that the combined effect of low humidity, wind and heat associated with dust could cause intense hyperæmia in the normal conjunctiva. Reference was also made to the importance of these same factors in the production of pterygia (Flynn, 1944). My figures on the incidence of the severe form of trachoma strongly suggest that these same factors again play an important role in converting the comparatively benign uncomplicated trachoma into the terrifying disease that it can be. It would seem that they diminish the resistance of the conjunctiva to secondary infection also. It could be that these same factors are important in determining the character of trachoma in Egypt.

This remarkable feature of the disease, as it occurs in the Northern Territory, is referred to by Schneider (1946). He comments on the extraordinary effects that climate has on its severity, adding that in the areas rarely free from wind and dust the disease is severe. In the more northern areas comparatively free from these factors, the disease is mild and the complications are rare. He further notes that the incidence rates are practically identical in the two areas thus subdivided climatologically.

#### TREATMENT.

A concerted attempt is now being made to eradicate trachoma throughout the Northern Territory.

It is fortunate that the discovery of the effectiveness of the sulphonamide drugs in combating trachoma anticipated by a few years the realization of the prevalence and seriousness of the disease among the aboriginal tribes of North Australia, for it is certain that very few natives would have presented themselves with any consistency for rigorous applications of the copper sulphate stick.

#### Routine Course of Treatment.

Following the guidance of the World Health Organization, we in the Northern Territory have used a combination of sulphonamide drugs given by mouth and antiviral antibiotics applied locally.

The line of treatment recommended is as follows:

1. The administration of "Sulphatriad", sulphadiazine or sulphadimidine, six tablets (eight grains) to begin treatment, then three tablets twice a day for two weeks (that is, a quarter of the body weight in pounds), gives the daily dose in grains. Thus 90 tablets constitute one course. Two further courses of the same dosage are favoured, with an interval of two weeks between them. It is certain that one course does not cure all patients, and also that the full effect of treatment may not be manifest till some six months after the course is finished. Till the end of that time it is not possible to determine whether one course has been effective or not. Dealing, as we are, with Australian natives, it may be impossible to get into touch with many of them again at the end of that time, to estimate the effectiveness of the course of treatment. For this reason it is suggested that three full course of treatment be given if possible, while the patient is at hand. Half an ounce of potassium citrate mixture (30 grains) twice a day and copious fluids are prescribed during treatment.

2. Combined with the course of sulphonamide drugs by mouth, antibiotics are applied locally. "Aureomycin" ophthalmic ointment (1%) is squeezed into the conjunctival sac (preferably under the upper lid) twice or three times per day for two months.

All patients should be reexamined if possible in about six months, to determine whether they are free of the disease. In some cases I have observed, amelioration has been rapid, even in acute florid cases. Discomfort and blepharospasm have been relieved in a few days. The conjunctiva has become white, and pannus has diminished during the same time. Pale follicles in the tarsal conjunctiva take longer to disappear.

#### Planned Mass Campaigns.

The surveys that have been completed in the Northern Territory give a sufficiently clear idea of the incidence, distribution, infectivity and severity of the disease. Over and above, a simple effective line of treatment has been mapped out and standardized.

The main work now is to carry on a practical, efficient mass campaign against the disease. This can be suited to the various types of establishment from which contact with natives can be made.

The campaign should be rapidly successful in towns and on missions and government settlements, where treatment and supervision are relatively simple. Some cattle stations may present difficulties, as also will the semi-nomadic tribes.

On all occasions the systematic treatment of the active disease should be accompanied by continued attempts to teach the natives the rudiments of personal hygiene; but results in this direction cannot be expected overnight.

The schools throughout the Northern Territory should receive special attention, as they provide an excellent opportunity of attacking the disease in its early infective stages. They can be changed from reservoirs of potential infection and centres for dissemination of the disease to front lines of attack on the activities of the virus. If the school children (or, where there are no schools, the young natives in the area) could be regularly checked and vigorously treated, when necessary, to keep them free of the disease, the incidence would be greatly decreased and

perhaps in time it would be eradicated. All new entrants to any school should be examined, and the disease, if present, cleared up. Regular school inspections would discover any cases of reinfection.

Quite often signs of the disease reappear months after patients are clinically free of the disease. It would seem likely that most of these are cases of reinfection rather than relapses. I have seen native children, cured of the disease while at school, returning with severe signs after a holiday walkabout on a nearby cattle station. These cases show the importance of attacking the disease on all fronts. The aim must be to organize the campaign so that every patient with the active and infective disease receives a thorough course of treatment. This is a colossal task; but unless it is done reinfection will continue to be common, by contact with untreated patients with active disease.

The emphasis must be placed on discovering and recognizing all subjects with active disease and bringing effective treatment to them in the most convenient and practical way, with the cooperation of all concerned.

#### Prevention and Education.

For any campaign to be really successful it should include instruction in the disease by radio talks, lectures, pamphlets and slides. The more people interested in the disease and its eradication, the better. Instructions can be graded according to the type of audience, and some of the following points should be stressed: (i) the seriousness and infectious nature of the disease, the fact being recalled that the natives form a reservoir of the disease from which Europeans, especially the children, can be readily infected; (ii) some ideas as to the nature of the disease, and when to suspect its presence, and the necessity of seeking advice; (iii) some ideas on treatment, especially its simplicity, to prepare people to carry out directions of the medical officers; (iv) the importance of preventive measures. The personal hygiene of the natives can be improved only by repeated insistence on this last point by all who care for them. Attention to the fly menace is also important.

As part of the campaign, I have been asked to address hygiene schools for missionaries and superintendents of native settlements. These schools are regularly arranged by the Northern Territory Medical Service. Special lectures are also given to nurses in the Northern Territory.

The courses of instruction are varied according to the understanding of the particular groups. It is also recommended that talks be given in schools and elsewhere, to help more and more people to become aware of the seriousness of the disease and the important points concerned with its recognition, treatment and prevention.

The 1952 report of the Expert Committee on Trachoma of the World Health Organization stresses this point:

The committee considers that health education is of primary importance in the prophylaxis of the disease, and that it should be developed to the greatest possible extent by all available means, and by modern propaganda techniques adapted to local conditions.

#### SUMMARY.

1. Attention is drawn to the high incidence of trachoma among the natives of the Northern Territory of Australia.
2. Reference is made to inclusion bodies observed and photomicrographed in smears taken from the Northern Territory natives.
3. The clinical characteristics of the disease as it occurs among the natives under review are described.
4. The fact that the disease may progress along two different courses, with the production of the benign or the severe form, is stressed.
5. Methods of classification are discussed in relation to the clinical features of the disease as it occurs among natives of the Northern Territory.
6. A clear distinction is drawn between two problems—one dealing with factors that may influence the high

incidence, the other treating of conditions determining the severity of the disease.

7. Poor personal hygiene, along with the very close contact involved in the natives' usual way of life and facilitating spread by direct contact, is offered as an explanation of the high incidence.

8. A method of estimating by the severity index the relative severity of the disease as it occurs in different districts is suggested.

9. The factors considered mainly responsible for the severe manifestations of the disease are the following: (a) repeated secondary infection; (b) climatic conditions of low humidity, wind and heat combined with dust, causing excessive drying of the conjunctiva. Great importance is attached to this type of continued physical trauma as a factor promoting the more severe manifestations of the disease.

10. Finally, treatment and control of the disease are discussed under three headings: (a) the routine course of treatment; (b) the planning of mass campaigns; (c) the importance of education at all levels in the eradication of the disease.

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## RADIOLOGICAL ASPECTS OF PORTAL HYPERTENSION.

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THIS report on the radiological investigation of portal hypertension in children is presented mainly to underline certain observations which have been made at the Royal Children's Hospital, Melbourne. In particular, it is hoped to stress the safety and importance of the controlled use of contrast venography and some of the fallacies in the interpretation of the radiographic picture so produced. A brief review of the different causes of portal hypertension in the present series will also be undertaken.

During the last two and a half years, 17 children have presented at the Royal Children's Hospital with a provisional diagnosis of portal hypertension, and have been referred to the Department of Radiology for investigation. With rare exceptions they have presented with hæmatemesis and sometimes melæna, occasionally with hepatosplenomegaly or splenomegaly only.

The investigation undertaken has included a search for possible varices in the lower part of the œsophagus or in the stomach by means of a barium bolus. All too often this has not been of help, as varices are difficult to demonstrate by this means. At best, the study confirms the site of bleeding, without helping to define the cause or map out possible surgical treatment.

The recent introduction of contrast venography of the portal system has, however, greatly aided the radiologist, and this investigation has been carried out in all the cases mentioned. Various terminologies have been used in relation to this form of venography, but for the purpose of this paper it is proposed to call roentgenograms obtained through the percutaneous splenic procedure splenic portagrams, and those obtained after the injection of a mesenteric tributary at laparotomy mesenteric portagrams. The latter procedure has been carried out in only three cases in which splenectomy had previously been performed.

A total of 22 splenic portagrams has now been taken at the Royal Children's Hospital with no morbidity of any description. The routine procedure is that under general anaesthesia combined with the use of a respiratory depressant such as "Scoline", a wide-bore, short-bevel needle is inserted into the spleen. Sometimes it is possible to feel the needle passing through the splenic capsule, but on other occasions the first intimation that the spleen has been punctured is the passage of blood from the needle. The portal pressure is then immediately recorded via an electromanometer, and then 15 to 20 cubic centimetres of 70% "Urokon" solution are injected by hand. Pressure equipment is never used for this injection because of the risk of rupturing the spleen. A series of 10 films is then exposed at intervals of one second, the series being started one second after the beginning of the injection. On completion of the injection, the needle is at once removed. Care is taken during the whole procedure to inhibit diaphragmatic movement by means of the respiratory depressant.

In the 17 cases presenting at this hospital, only two pathological conditions have been demonstrated as causes of portal hypertension. Cirrhosis, probably the result of infective hepatitis, accounted for only three cases, whereas the so-called cavernomatous malformation of the portal vein was found to be present in nine cases. In the remaining five cases, the provisional diagnosis of portal hypertension was disproved by the investigation. No example of portal vein block has been found.

Nothing further need be said here about the cirrhosis following infective hepatitis; but a few words would appear to be indicated regarding the interesting condition of cavernomatous malformation of the portal vein. It can be stated at once that nothing is known of its aetiology, but at present two theories are recognized. One suggests that the changes are the result of multiple recannulization of

an obstructed portal vein, this in turn being due to thrombophlebitis following a neonatal umbilical infection. The other theory is that the condition is a true developmental abnormality. This latter perhaps better explains the radiological appearance, which may be described as follows. The portal vein is found to be replaced by numerous small, thin-walled veins. These follow a tortuous course into and through the liver substance, and their appearance, even at the periphery of the liver, is unlike that of normal portal vein branches. It should, however, be noted that these same radiological changes are not discernible on microscopic examination of sections, liver biopsy specimens being uniformly normal. Whatever its cause, this condition is far less amenable to surgery than portal hypertension due to cirrhosis, it being rare to find a suitable vessel for anastomosis in the mass of twisting, thin-walled veins.

To help clarify the radiological interpretation of splenic portagraphy, the appearance when no portal hypertension exists is shown in Figure I; this demonstrates the complete absence of reflux of dye into any tributaries of the splenic or portal veins. The anatomical correctness of these veins and the intrahepatic branching of the portal vein are also shown.

In cirrhosis, the gross appearances of the portal vein branches are very little altered from normal, although the dye can be seen to take a somewhat slower course through the liver. However, if portal hypertension exists, the varicose gastric and œsophageal veins are well filled and demonstrate clearly the site and size of these anastomotic channels (Figure II).

The typical appearance of the cavernomatous malformation, sometimes likened to a *caput Medusæ*, is well demonstrated in Figure III. In particular, the tortuous course of the intrahepatic portal vein branching is striking in comparison with the normal anatomy.

A word of warning must now be given on the exact radiological interpretation, and the problems involved here can perhaps best be illustrated by a description of a recent case.

A girl, aged eleven and a half years, presented with a history of hæmatemesis and melæna four months before her admission to hospital, severe enough to warrant blood transfusion. On examination of the patient, the liver was palpable, but the spleen was readily felt three fingers' breadth below the costal margin. A barium bolus X-ray examination demonstrated œsophageal varices, and splenic portagraphy revealed an apparent block of the portal vein (Figure IV), but at operation a cavernomatous malformation was found, and this was confirmed at subsequent portagraphy (Figure V). Review of the original films then showed that varicose channels to the systemic venous system were widely open and were carrying away large amounts of dye; this was thus going the way of least resistance and none was reaching the liver. The main varicose vessel, which was thought originally to be a gastro-epiploic vein, was shown on the post-operative portagram (which included a lateral series of films) to be in fact a retroperitoneal lumbar vein of Retzius opening into the left suprarenal vein.

This case demonstrates two of the pitfalls in interpretation: (1) If varicose channels to the low-pressure systemic system are widely patent, dye will take the path of least resistance and none may pass to the liver; thus the appearance of a block will be produced. (2) The venous anatomy may be grossly disturbed, and structures such as minute lumbar veins may be greatly dilated and simulate much larger structures.

### Conclusion.

In conclusion, it is thought that contrast portagraphy is very useful in the diagnosis of portal hypertension and in the planning of surgical measures to combat it. It can even be used in post-operative cases to show the patency of a porta-caval or other shunt, and to demonstrate lessening or absence of filling of varices after such an operative procedure (Figure VI).

### Acknowledgements.

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DR. BELLAMY OF PAPUA: III.<sup>1</sup>

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## Anthropology.

FROM his earliest days in British New Guinea, R. L. Bellamy's contemporary officers spoke of his sympathetic treatment of the native people. Monckton, who was his senior officer and Resident Magistrate in the Northern Division, wrote when Bellamy was leaving the Kokoda area (Monckton, 1905) that Mr. Bellamy "brought to his work a sympathy with the natives, and acquired a knowledge of their peculiarities that is as rare as it is valuable". Griffin, the senior Assistant Resident Magistrate at Kokoda, spoke of "his tact and kindly dealing with the natives". It was these qualities as well as his almost completed medical training which led Barton to select him as the most desirable officer to place in charge of the special hospital in the Trobriand Islands.

Some observations on the Trobriand Islanders had already been made and recorded before Bellamy reached the Group. Sir William MacGregor was greatly impressed by the social system, unique in Papua, which included the acceptance of chiefs and commoners. He published a Kiriwina vocabulary in 1893, and this was followed by a more extensive vocabulary and grammar published in 1902 by the Reverend S. B. Fellows who had opened up the mission in the Trobriands. The Reverend M. K. Gilmour, who was in charge of the Methodist Mission in the Trobriands when Bellamy arrived, had published in 1905 "A Few Notes on the Kiriwina (Trobriand Group) Trading Expeditions". In his letter offering Bellamy the position in the Trobriands, Barton wrote that "the natives of the Trobriands have all sorts of queer whims and fancies—chiefly due to their elaborate totemic system".

Bellamy soon found that he must learn the Trobriand language to be successful in his hospital work, and the very nature of his hospital practice soon led him into inquiry about, at least, the sexual behaviour of the people. In Bellamy's first annual report (quoted by Seligman, 1910) there is evidence of this. The totems of 247 cases of venereal disease were analysed. Bellamy had also examined the marriage customs between the various totem groups.

In 1908 were published Bellamy's "Notes on the Customs of the Trobriand Islander" which were dated July 1, 1907, twenty months after his arrival in the Trobriands. This paper commenced with the statement that it was "extremely unlikely that any white man will ever be in a position to say that he had mastered all the intricate details of the daily life and social system of the natives of the Trobriand Group". However incomplete the account was, Bellamy thought that it should be recorded, as changes were already occurring, and it was becoming difficult to separate the original from that which had been superimposed from without. The paper details many aspects of the Trobriand social structure, beliefs, behaviour and crafts. Bellamy attributed the power of the chiefs to sorcery—"the power to make dead"—and rule by fear. He believed that, with the passing of the old grey-headed chiefs, this fear would gradually diminish and finally disappear.

This paper apparently came to the notice of the anthropologist, Dr. C. G. Seligman, probably through the medium of the Administrator, Captain F. R. Barton. In his classic account of the "Melanesians of British New Guinea", published in 1910, Seligman stated that Bellamy had read through that part of the manuscript of the book which dealt with the Northern Massim people and had made a number of corrections, besides giving Seligman much additional information. The map of Kiriwina in this book was drawn by Bellamy, and Seligman stated that Bellamy had given him the greatest assistance; he is extensively quoted throughout the relevant sections.

In Murray's first book on Papua (1913), the Lieutenant-Governor stated that "nearly all of our knowledge of the Trobriand Islanders is derived from Mr. Bellamy's contributions". Murray referred to the information in Bellamy's reports, medical and magisterial, which have been printed in the "Annual Reports" of Papua and are garnished with observations on the behaviour and activities of the people of the Trobriand Islands.

Some parts of these reports were of sufficient general interest to be published verbatim in Australian newspapers.

Bellamy learnt the customs of the Trobriand people the hard way. Early in his stay in the Group he was at the village of Sinaketa and told one of the traders that he was going to inspect the gardens. He was warned that the gardens were *tabu* for males at this particular time of the year. Bellamy said he was the Government and would not be deterred. The women working in the gardens ripped the shirt from him and his trousers were torn. He escaped and ran, jumping over the fence, before further ignominy was committed upon his person. Bellamy did not punish the women for this assault—it was a native custom, he was in the wrong; so be it.

Of considerable interest are Bellamy's relations with the eminent anthropologist Malinowski, who wrote extensively on the people of the Trobriand Islands. Malinowski made two expeditions to the Group between 1915 and 1918, arriving for the first time early in June, 1915. Bellamy left the Trobriands soon afterwards to enlist for active service, but made the acquaintance of Malinowski before departing. After the war Bellamy returned on a visit to the Trobriands one month after Malinowski had finally left in October, 1918.

Bellamy mentioned Malinowski in letters to his sister. In July, 1915, Malinowski was staying with him. "He is a Pole from Cracow originally but quite a nice chap. Very clever and all that—he intends spending a year or so out here amongst the natives." Later, Malinowski (referred to as "Cracow") was developing photographs in Bellamy's house. He had suggested that Bellamy should write a joint book with him on the sociology of the Trobriand people. Bellamy commented: "I suppose I know more about them than any other living white man but compared with the war sociology seems very small 'beer' and I'm turning the offer down."

Mr. C. B. Cameron of Kitava Island (one of the Trobriand Group) paid a visit to Losuia soon after Malinowski arrived. Bellamy told him that Malinowski persisted in following him around with pencil and paper, learning the language. He added that his guest was a very clever man and thorough in his work. During Cameron's visit Malinowski slept in Bellamy's room, Cameron on the veranda, and Bellamy under the table.

Later accounts indicate that Bellamy developed a profound dislike for Malinowski, and that this was based on a fundamental difference in their attitudes towards sexual matters. Further, in conversation with Heydon in 1926 at the Australian Institute of Tropical Medicine, Bellamy said that Malinowski had undone much of the work he had done during the ten years he spent as the Government Officer in the Trobriand Islands.

This change in the attitude of Bellamy—a man who was noted for his tact and was universally liked—towards Malinowski must have had origin in some profound disagreement between the two principals. On the part of Malinowski, in his first two books on the Trobriand Islands ("Argonauts of the Western Pacific", 1922, and "The Sexual Life of Savages", 1929) there is but one direct reference to Bellamy—in the later book. This refers to the surprise of the natives when they saw how Bellamy removed the placenta. There is a further indirect reference to Bellamy in the same book when Malinowski quoted a story told by Billy Hancock concerning sexual intercourse between a number of boys and an "old, decrepit and ugly woman". The medical officer (Bellamy) was credited with incorrectly regarding her as beyond suspicion as a possible source of the boys' gonorrhoeal infections. However, in his evidence before the Commission on British and Australian trade in the South Pacific given on October 27, 1916, in Melbourne, Malinowski referred to Bellamy as "an exceedingly good official", although he did not cite his name. Further, in his controversy with Rentoul in *Man* (1932), Malinowski referred to the great contribution Bellamy had made to the knowledge of the Trobriand Archipelago in cooperation with and under the direction of Professor Seligman. Still later, in 1935, Malinowski stated that Dr. Bellamy had unfortunately left the Trobriand Islands soon after his own arrival.

It is difficult to understand how Malinowski, in the usual sequence of events, could have avoided at least some discussion of Bellamy's published observations on the Trobriand Islanders. It could be suggested that he habitually ignored the results of previous workers or perhaps of "amateur anthropologists", but in "Argonauts of the Western Pacific" Malinowski referred to the Reverend M. K. Gilmour's paper on the "Trading Expeditions", and after using it in the field, "found it

<sup>1</sup> A full bibliography has been lodged in the Mitchell Library, Sydney, and in the library of the School of Public Health and Tropical Medicine, Sydney.

substantially correct, and on the whole formulated with precision". It is certain that Malinowski was well aware of Bellamy's work even before he left for the Trobriand Islands, as Professor Seligman contributed materially and financially to Malinowski's expeditions. Ford pointed out that Malinowski reported the Trobriand people as blaming the Europeans for introducing venereal disease, whereas Bellamy had already shown that they were unaware of the method of transmission of the disease in the earlier years of the century. By the time that Malinowski reached the Trobriands the people had had ten years' instruction by Bellamy in its method of transmission.

Malinowski made no mention of staying with Bellamy; he specifically stated that for a total period of only six weeks did he live with Europeans in the Trobriands—with the late Billy Hancock, and with M. and Mme. Brudo, of Sinaketa. That this antipathy could occur may perhaps be explained, to some extent, by the statement of Firth, in his obituary on Malinowski, that "his emotional hypersensitivity sometimes led him to harsh judgments of men and their motives". Richards, too, stated that Malinowski "made enemies as well as devoted friends".

Malinowski entered into a controversy with another Assistant Resident Magistrate of Papua, Mr. A. C. Rentoul, in a series of letters in *Man* in 1931-1932, concerning the Trobriand Islanders' awareness of physiological paternity. It may be added, also, that Malinowski was not the only anthropologist who, on occasion, has been at variance with district officers in Papua.

With regard to the opinion that Malinowski had undone in two years much of the good which Bellamy had accomplished during his ten years in the Trobriand Islands, Bellamy must have arrived at this conclusion after his return from the first World War, when he visited the Group late in November, 1918. Mr. Whitehouse was appointed to perform the dual duties of the Government Officer at Losuia in February, 1919, and reported that there was a feeling of contentment amongst the native people in June of that year. Bellamy had authority to speak on the effect of Malinowski's visits upon the Trobriand people, as he had lived amongst them for ten years as their doctor and magistrate; he had made a close study of their customs and had examined nearly every one of them each year over the period 1908-1915, and his work was highly regarded by the Lieutenant-Governor of the Territory. Bellamy may have had good grounds to doubt the wisdom of allowing an enemy alien, who had escaped internment in Australia owing to the intervention of his scientific friends (Anonymous 1942), to work among the native people of Papua, where Bellamy had been so long engaged in spreading the concept of *pax Britannica*. In this regard it is pertinent to note that Malinowski expressed the opinion before the Commission on British and Australian trade in the South Pacific on October 27, 1916, that in general the native people should be left to their own conditions.

An extract from one of Bellamy's reports shows how his knowledge of the beliefs of the Trobriand Islanders could be applied in the practice of medicine. Bellamy had recently qualified for high honours among the local sorcerers by removing 67 calculi from a patient. He wrote as follows (Bellamy, 1908):

A few days later a native appeared complaining of an animal feeding inside his stomach, sometimes on the right side, sometimes in the left, sometimes up towards the back of the right shoulder. He did not know what kind of an animal it was—it had been there for months. The patient further stated that the animal always began to move about and feed as soon as he (the host) had taken food. I told him I would trap the animal and he would know it had been trapped by not feeling it move after he had taken his ordinary meals. Accordingly the trap was set and baited, amongst other things with blamuth subnitrate, and the patient informed that a certain number of traps might be necessary. He quite saw the force of this. Ultimately the animal was effectively secured. I mention this case because it illustrates the form of medical treatment one has occasionally to give. This patient would have lost all faith in me at once if I had alleged and jeered at his story of an animal. He would have gone away and ridiculed the idea of a white man understanding the stomach menagerie of a Trobriand Islander.

Just before he left the Trobriand Islands to serve in the first World War, Bellamy (1916) prepared a vocabulary of the language of the Trobriand Islanders. This was in conformity with a series of vocabularies which were being compiled throughout Papua along lines suggested by Professor J. G. Frazer.

Williams (1923), the Government Anthropologist of Papua, in his paper on "The Vilala Madness", an early example of the Cargo Cult, quotes a description by Bellamy of the mass behaviour of a group of natives at Raniau in the Northern Division written when Bellamy was a Travelling Medical Officer, probably in 1922. This is one of the few post-war reports

of Bellamy's that survive, and indicates that his interest in the "peculiarities" of the native peoples continued after he had left the Trobriand Islands.

Austen, who was an Assistant Resident Magistrate in the Trobriand Islands before the second World War, wrote on cultural changes in Kiriwina (1945). He described some of the early work done by Bellamy, including the benefits which Bellamy had conferred upon the people when he made them plant coconuts—"a very wise move on the part of the magistrate", as it gave the commoners ownership of these nuts which had previously been the property of the chiefs.

That the people of the Trobriand Islands themselves held Bellamy in high regard is indicated by the report of Ford (1939), that when the news of Bellamy's death in Sydney in 1938 reached the Trobriand Islands, mourning ceremonies were performed for him in the villages.

#### Government Administration.

During the time of his first appointment at Kokoda in the Northern Division, Bellamy was an Assistant Resident Magistrate and Warden. At this time there were approximately 100 men engaged in the search for gold on the Yodda and Gira fields and the yield for the year was about 12,000 ounces in 1904-1905 (Monckton, 1905). Kokoda station had been established in place of the former government stations at Bogi and Papangi to afford more effective protection for the lives and property of the miners on the Yodda gold field (Monckton, 1905). The station was situated 15 miles from Mount Victoria and 70 miles from the coast, and was the furthest inland station in British New Guinea. All supplies to the station and the goldfield had to be carried overland on a six-days' journey from the coast over difficult terrain.

On September 20, 1904, Bellamy was appointed to Kokoda, and Mr. H. L. Griffin was transferred to Kokoda as senior Assistant Resident Magistrate on the same day. Also at Kokoda at this time was Assistant Resident Magistrate A. Elliott. Monckton (1922) described these officers as three of his very best, who helped him put the affairs of the Northern Division in order. He also (1905) stated that "Bellamy's share in the pacification of the hitherto somewhat unruly tribes at the Kokoda Sub-District has been no small one". When Bellamy left Kokoda, Griffin entered in the station diary, on August 28, 1905, an appreciation of Bellamy's work, and stated that he had endeared himself to everybody and would be a hard man to replace or follow. On the goldfield he was well liked by the miners (Nixonwestwood, 1955).

When Monckton was setting out to arrest a miner named O'Brien, who had been causing serious trouble with the native people in the area, Bellamy offered to make the arrest himself, although O'Brien was known to be armed and would probably resist arrest (Monckton, 1922). O'Brien was arrested by Monckton and Bellamy on April 16, 1905, on the Two-Mile Creek near the Yodda. He was escorted to the Kokoda station gaol by Bellamy, who treated him for fever with quinine. He later escaped, after Bellamy had left Kokoda, and was never found. Bellamy told his sister that he did not like police work amongst the Europeans and much preferred work with the native people.

An appreciation of Bellamy's work at Kokoda is contained in a letter from the Administrator, Captain Barton, written after Bellamy had expressed his intention of returning to England to complete his medical course. Barton thanked Bellamy for the exceedingly good work he had done during the tenure of office as Assistant Resident Magistrate of the Northern Division, and regretted that Bellamy was leaving the Possession. Barton expressed the hope that Bellamy would return when he had completed his medical studies.

Bellamy offered his services to superintend the repairs required on the Buna Bay Road from the coast to Kumusi for a maximum period of three months prior to his projected departure for England. Barton wrote a letter to Bellamy setting out the conditions for this work, the object of which was to make the road passable for pack mules. His salary was to be at the rate of £25 per month, and he was to retain the appointments of Assistant Resident Magistrate and European Officer of the Armed Constabulary. The repairs effected were to be as permanent as possible, and hard wood in preference to soft was to be selected for bridging. Constables to assist Bellamy would be detailed by the Resident Magistrate of the Northern Division, who would be Bellamy's senior officer. Bellamy was to determine the rate of pay of the local natives whom he employed. These



natives were not to be compelled to work, but Barton thought that they would give their services voluntarily.

Bellamy proceeded with the work, and two weeks before his contract was due to expire, Barton wrote him a further letter. He said that he had heard from Monckton that Bellamy was "putting much good work into the road. I expect it has been a rather hard job, and you will get full credit for it". This was the same letter which offered Bellamy the appointment as officer in charge of the special hospital in the Trobriands, which offer Bellamy accepted, and the proposed trip to England faded into the background.

A further minute by Barton was forwarded by the Government Secretary, Musgrave, expressing Barton's satisfaction with Bellamy's report on the work on the road. Barton also stated that "Mr. Bellamy deserves great credit for the way in which he has conducted this difficult job".

Before we leave his early Kokoda days, a few more items deserve mention. At Kokoda Bellamy was in charge of the station drugs (Monckton, 1922), and Griffin (Kokoda, 1905) wrote of his medical skill. In describing a newly-arrived officer who had gained no one's approval at the station, Monckton (1922) recorded the opinions expressed by his three Assistant Resident Magistrates, Bellamy, Elliott and Griffin. He recalled "some of the little incidents of which I have been told in the ante-New Guinea career of the whole trio; and certainly some of their performances were lurid enough for anything". Bellamy's transfer to the Trobriand Islands carried a considerable increase in salary, from £225 to £350 *per annum*, which afforded his colleagues at Kokoda the utmost satisfaction (Kokoda, 1905).

There is a Mount Bellamy near Kokoda, named by the Reverend J. Chalmers when he was exploring the west bank of the Goldie River in 1879. Neither the London Missionary Society nor the Royal Geographical Society in London has been able to identify the Bellamy after whom this mountain was named. It is certain that it was not R. L. Bellamy, who was only a boy aged five years in 1879.

It was not until 1906-1907 that Bellamy was gazetted Assistant Resident Magistrate at the Trobriands, although Barton had stated that he would continue to hold this appointment when he transferred to the Trobriand Islands. The exact date of this appointment is not given in the Papuan Annual Report; but Austen (1945) stated that the Government station at Losuia dated from 1907, which would place the date in the first six months of that year. However, Bellamy claimed that he was an Assistant Resident Magistrate in October, 1906, when he gave evidence before the Royal Commission on Papua (Mackay *et alii*, 1907).

Bellamy's first magisterial report published in the Papuan "Annual Reports" is for the year 1907-1908, and in this he commented on the fact that Losuia differed from other sub-stations in possessing no detachment of armed constabulary. This deficiency was rectified in the following year, but in the period before this Bellamy had only the assistance of 18 village constables to look after approximately 10,000 people in 156 villages and hamlets.

This lack of an armed constabulary detachment led Bellamy to adopt the unorthodox procedure of keeping prisoners without guard in an open shed, where they remained until given permission to leave at the expiry of their sentences. This method of detention contrasted greatly with that described by Bellamy in 1903 at Cape Nelson, where legirons were used for each prisoner and sometimes two prisoners were chained together. The Acting Administrator, J. H. P. Murray, thought that the success of this method of detention was due to the ease with which the Trobrianders could be dealt with, and Lett attributed it to their docility. Murray also thought that there may have been no safe place for escaping prisoners to go. In the year 1907-1908 only two of 201 prisoners escaped from the gaol. These prisoners included three charged with murder, five with sorcery, nine with refusing to carry, and two with assault. It would appear that Bellamy's ability to deal with native people contributed to the effectiveness of his unlocked gaol, however "docile" the Trobriand Islanders may have been.

Bellamy was the first resident representative of the Government in the Trobriand Islands. Sir William MacGregor had made several visits during his ten years of office, and Moreton, the Resident Magistrate of the South-east Division, had called at the Trobriands as circumstances permitted. Moreton remarked that a resident officer would be of great benefit to the people, as he considered that the unsupervised foreigners engaged in pearling

and bêche-de-mer fishing were seriously affecting the health and welfare of the Trobriand people.

One of the first great problems which Bellamy encountered was the strong belief in sorcery amongst the Trobriand Islanders. This concerned both his medical and magisterial work; and it has already been shown how he was able to overcome the early distrust of European medicine. The use of fear and sorcery and paid assassins was the method by which the chiefs maintained their prestige. Bellamy commented that the fear was a real one, and when a man had once made up his mind that he had been "bewitched" (Bellamy's nearest equivalent), it was almost impossible to save his life. The condition was one of self-hypnotism in Bellamy's opinion; the voluntary muscles were first depressed and finally the involuntary muscles were inhibited.

An attack on sorcery was thus directly aimed at the social structure, with its consequent threat to the powers of the chiefs. During succeeding years sorcerers were imprisoned, including Toulou, the paramount chief, before whom all men bent double. In 1911 there were several cases of sorcery intimidation and rumours of others. Bellamy inflicted the maximum punishment within his power, six months' imprisonment, upon those convicted, which he had not done before. This was followed by a period during which no similar offences occurred. But, even up till the year 1915, which marked the end of Bellamy's term as Assistant Resident Magistrate in the Trobriands, there were still convictions for attempting to procure sorcery and threatening sorcery, although Bellamy noted that there was less reluctance in reporting sorcery on the part of the native people than there had been in earlier years. Even at the present time the Trobriand Islander has not completely overcome this fear of sorcery. However, Austen (1945) admitted that the imprisonment of Toulou (Toulouwa), the paramount chief, reduced his authority to some measure.

Bellamy stated that the Trobriand Islander was accustomed by tradition to recognize the authority of his village chief, and accepted the overlordship of the Government almost as a matter of course; this had already been noted by Sir William MacGregor in his early visits to the Trobriands. In much the same spirit the Trobriander accepted punishment, and did not appear to sulk or bear malice. When he fell into serious crime there was usually a woman at the seat of the trouble.

Burial in the village had been the practice before Bellamy's arrival, but it soon ceased after he had demanded that it should stop and had convicted 37 persons for this offence in one year. He attributed one outbreak of dysentery to the burial of a body in the village contaminating the water supply. This may have added force to his argument against this custom. On a later occasion one of the chiefs claimed that the Government had caused a serious crop failure, as it had prohibited the burial of garden medicine men in the village. When they were buried well outside in the bush, their spirits refused to look after the gardens and famine resulted.

Bellamy commented on the apparently large amount of crime which occurs when a Government station is established in a district which previously has been only feebly controlled; crime and offences which would otherwise have been unknown are brought to light and punished. Despite the large number of convictions, he said that there was little serious crime in the Trobriands, and there had not been long enough contact with outside influences for professional criminals to develop. Reading through his annual reports, it is easy to see, from the convictions recorded, which particular innovation was being introduced at the time—village cleaning, track cleaning or coconut planting.

Many cases of native disputes came to Bellamy for settlement, but few were taken to the court, as he found that most of these were capable of settlement by arrangement between contending parties. This method was satisfactory, as it prevented bitterness, and it was possible to send both parties away each convinced that he had won. Malinowski (1935) stated that hanging had been carried out as a punishment on one or two occasions in the Trobriand Islands by the Resident Magistrate. The records of the Central Court, sitting at Losuia, together with Bellamy's reports show that this sentence was not passed during the period when Bellamy was Assistant Resident Magistrate—that is up until the time of Malinowski's arrival.

Bellamy's patrol work and census-taking were closely associated with his work on the control of venereal disease. He attempted to examine every Trobriand Islander each year.



However, he was sometimes prevented from achieving this objective by an outbreak of dysentery or by inclement weather; he had only his whaleboat and the trip to Kitava can be a rough one—I have seen the present paramount chief trying to quell the wind and waves with his magic. The crew for the whaleboat consisted of prisoners or convalescent patients. Bellamy remarked: "While we undoubtedly may not look pretty or the rowlocks click with trained precision, we get there all the same." His station and hospital staff consisted of four—three boat-boys and one woman, the wife of the coxwain, who had charge of the female hospital ward. One of the boat-boys acted as gaol warder and as orderly for the male wards. Bellamy reported that the population of the Trobriands was 8500 in 1914.

In 1910 Bellamy issued orders that all natives must plant a certain number of coconuts, leaving it to the individual where he would plant them. After an interval he started to inspect the nuts and found that this method was a complete failure. It was impossible to verify all the statements made as to the sites where it was claimed that the nuts had been planted. His solution to this difficulty was to order all the tracks to be planted with nuts, the responsibility of planting to rest upon the owner of the land through or beside which the track ran. The people met this order with the question of where the nuts for planting would come from. The story is well told by Bellamy:

I spoke to the natives, both chiefs and commoners. They would run over the number of tracks on the tips of their fingers and thoughtfully tap their lime gourds with the spatula, and after expectorating into the middle distance would look up at me and mournfully shake their heads. The question of the nuts was a riddle which to their regret, to their sorrow, they must leave unanswered. Yes, they had a few nuts, just enough for funerals and holidays, and the entertainment of a friend. But to plant along these miles of tracks stretching east, west, north and south—no, regretfully, no. To line these tracks with nuts, to walk some day from Giliu, in the south, to Kaibola, in the north, along a sun-sheltered avenue was a dream, a beautiful dream, perhaps, but still a dream.

Now it is fact that, in spite of there being many bearing coconut palms in nearly all the villages, it was an unusual thing to see a dry, ripe coconut anywhere either about the house or on the little verandah. I know now that these natives purposely hide the nuts, if a commoner, because the chief might ask for them, and if a chief, because the commoner might steal them. I did not know this then, and until I made a further calculation, allowing a very liberal margin, of how many nuts they should have, I believed all they told me about this regretful scarcity. But the moment this calculation had been made the bubble burst, and the sorrow, the regrets, and the shaking of heads were no longer marketable commodities.

In July, 1912, therefore, a Government *tabu* was placed on the eating of coconuts. All nuts were to be stored for planting.

On June 30, 1914, Bellamy had counted and listed 120,694 planted nuts along an estimated 241 miles of tracks. These nuts, at maturity, would be capable of producing 1206 tons of copra *per annum*, which represented a very large annual income if the copra was made and sold. This achievement of Bellamy's was carried out with the use of no undue or unfair pressure. There were 217 convictions under the Coconut Planting Regulation, but in each case he made sure that the nuts had not been planted because the accused had eaten or otherwise disposed of the nuts. A great difficulty to be overcome in the planting of the coconuts had been the fact that before the Government came the chiefs had claimed all the nuts from the commoners. It was difficult to persuade the commoners that the Government would protect them in this matter. Bellamy's report on the promotion of coconut planting by the Trobrianders was reviewed in 1917-1918 by the Australian Commission on British and Australian trade in the South Pacific. His results were considered to be singularly successful. Ill fortune struck the Trobriands in the second half of the year 1914 in the form of a prolonged drought, resulting in the loss of about 30,000 of these newly-planted nuts. However, replanting was carried out to replace the dead nuts. Bellamy also planted some eighteen and a half acres of the station garden with coconuts as well as citrus and other fruit trees. He considered that Government stations could contribute largely to their own upkeep from the income from their own coconut plantations.

Bellamy reported that the work of the village constables was, on the whole, good. Occasionally dismissals were necessary; but Bellamy relied upon the help of these men to enable him to perform the tremendous amount of work he did each year—medical as well as magisterial. The strength of the detachment of armed constabulary remained at two, including one corporal, up till the time when he left the Trobriands. In a letter written in June, 1910, Bellamy told his sister that he was so tired after a patrol that something—a snake or a lizard—had bitten his foot during the night and had not wakened him. Yet his physical endurance was remarkable, and often, at the age of forty years, he walked from the Government station at Losuia to Kaibola and back—a distance of 24 miles—between 8 a.m. and 6 p.m., conducting business on the way.

In the year 1907-1908 the station was equipped with meteorological instruments, and observations were made from that time, although breaks in continuity occurred when the officer was absent from the station on duties such as patrols (Smith, 1908).

The small European population on the Trobriand Islands in Bellamy's time comprised two groups: one working at the Methodist Mission at Oiabia adjoining the Government station, and the other engaged in commerce. The Reverend M. K. Gilmour was in charge of the mission station when Bellamy arrived, and with him Bellamy developed a firm friendship. One common topic was their interest in the social life and behaviour of the Trobriand people. Bellamy noted that, quite apart from the effect of the religious teaching upon the native people, instruction in the habits of cleanliness and obedience, in schooling and in skills such as carpentering, could not fail to awaken "the dormant cerebral cells of the Trobriand natives". Gilmour was succeeded by the Reverend R. Holland and he, in turn, by the Reverend E. S. Johns. During the early part of 1915, when Johns was on leave, the Reverend A. Ballantine died from blackwater fever while on a visit to Oiabia.



FIGURE XI.

Government Officer's residence at Losuia in the Trobriand Islands built in 1910 and, with additions, still in use.

Members of the commercial group were engaged in the pearl and bêche-de-mer trade, and in the running of coconut plantations and trade stores. Bellamy was concerned with the administration of regulations covering these various activities, and amongst his duties was the collection of fees for pearl buyers' licences, native labour fees, gun permits and land leases. The annual revenue collected from these sources amounted usually to about £500. The names of some of the European residents have been recorded in annual reports upon plantations, or in acknowledgement of help given to Bellamy in sea transport. These are: Michael George, of Keribi; G. Auerbach and his brother, of Muwo; W. Hancock; Nicholas Minster (a notorious Greek—Griffin, 1925—who died in 1914-1915); S. Brudo, who had a plantation on Bomapuo Island; N. Campbell; and J. Delaney, and Mrs. Delaney. A billiard table provided night-time entertainment for the men at Losuia, and poker also provided diversion. On occasion Bellamy visited the Methodist Mission station and played croquet with members of the staff. He returned this hospitality by inviting the mission staff to tea and showing his photographs.

Pearls to the value of about £4000 or £5000 *per annum* were bought by licensed buyers from the native people. Relations between the buyers and the natives were, on the whole, good, according to Bellamy, who pointed out that the trader was entirely dependent upon the natives for the diving, just as the native had to depend upon the trader for buying. The Trobriand Islander was a keen trader himself, and in the matter of bargaining was well able to hold his own. However, Bellamy was very adverse to the system of advances or credit to natives, considering it to be practically a mortgage on the native or upon his industry. The number of pearling licences varied usually between five and nine each year, the pearls mostly finding their way to Paris.

In 1911, Bellamy commented on the history of pearling in the Trobriand Islands:

It is interesting to remember that less than 25 years ago the frisky-haired Trobriand native, when taking his evening oyster meal, was in the habit of disgustingly expectorating and, in all probability with much uncomplimentary language, ejecting from his mouth, pearls similar to those which to-day are worth anything from £1 to £150. In those days

## ILLUSTRATIONS TO THE ARTICLE BY THE REVEREND FRANK FLYNN, M.B., B.S., D.O.M.S., DIP. ANTHROP.

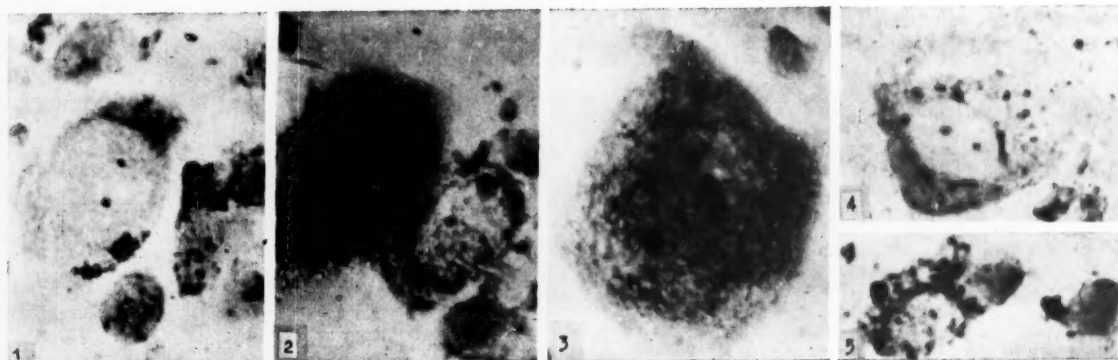


FIGURE I.—Epithelial cell with inclusion bodies. The crescentic mass over the nucleus is typical, containing three or four ill-defined initial bodies, the remainder of the inclusion being "plastin". FIGURE II.—The larger cell on the right has a well-defined inclusion of darkly stained material containing elementary bodies still discrete with regard to the cytoplasm. The nuclear membrane is here ill-defined, and the nucleus is recognized by two darkly staining nucleoli. The smaller cell on the left contains well-stained discrete spheres unrelated to any obvious cytoplasmic inclusion (see Figures IV and V). FIGURE III.—The elementary bodies have escaped the confines of the original inclusion and are disseminated throughout the cytoplasm. The nucleoli are prominent, but the nuclear membrane is ill-defined. FIGURES IV and V.—Two examples of large perinuclear spheres which are unrelated to other cytoplasmic inclusions. These do not appear to fit into the sequence suggested by Dark (1955).

## ILLUSTRATIONS TO THE ARTICLE BY GEOFFREY VANDERFIELD.

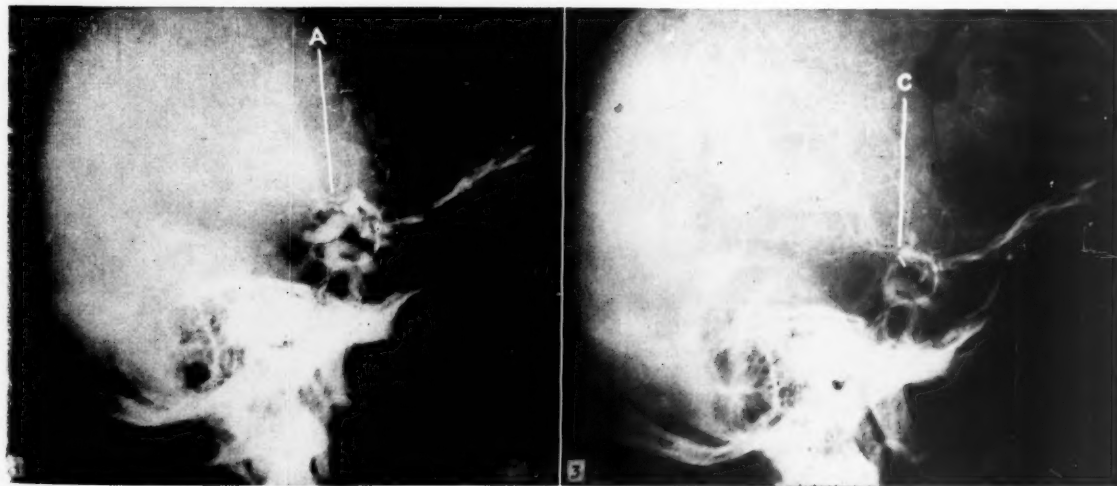


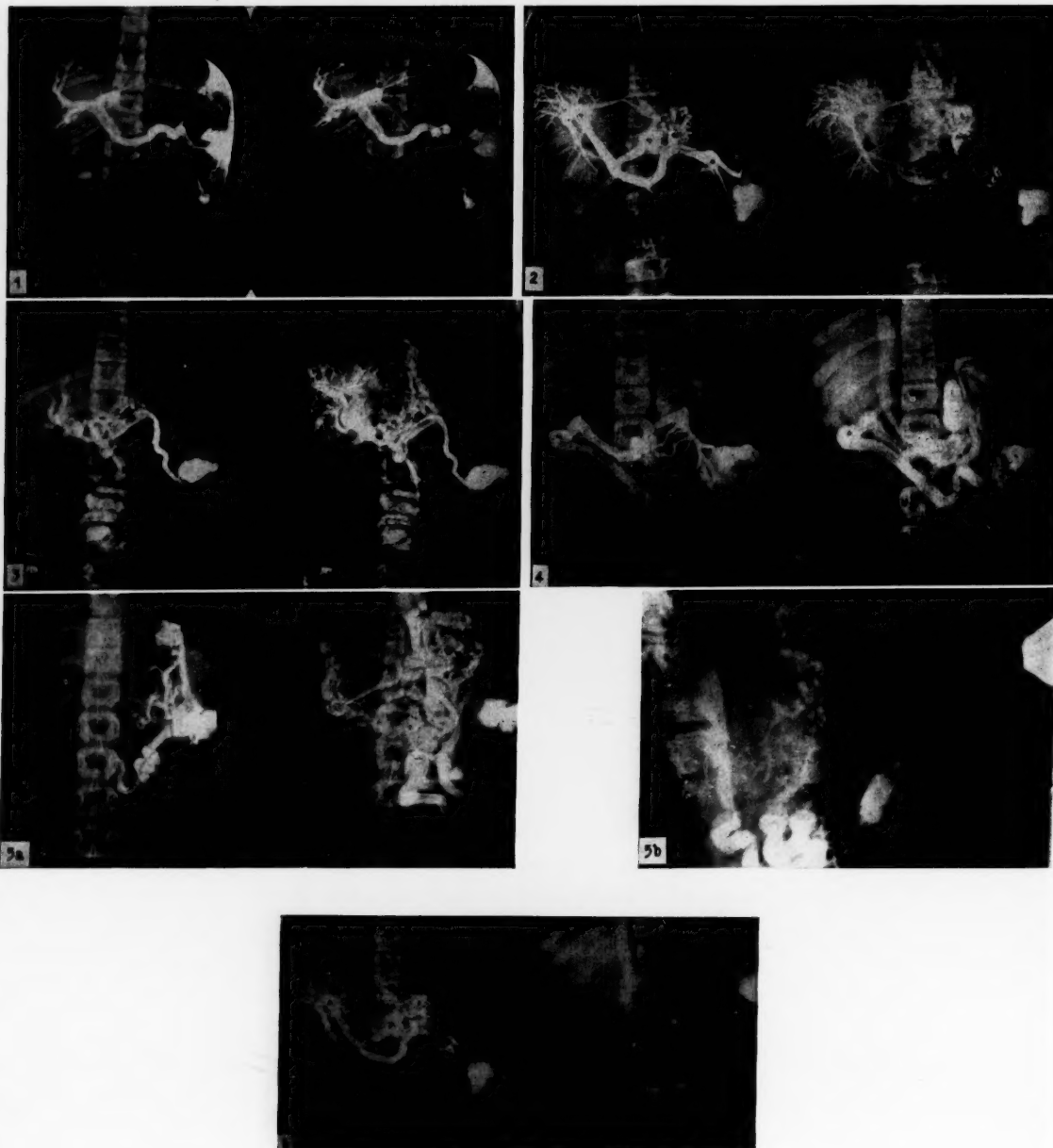
FIGURE I.

Pre-operative lateral arteriogram, showing the aneurysm (A) arising from the right internal carotid artery before its bifurcation.

FIGURE III.

Post-operative lateral arteriogram, showing the silver clip (C) which has occluded the aneurysm.

ILLUSTRATIONS TO THE ARTICLE BY H. G. HILLER, M.D., M.R.A.C.P., D.D.R., M.C.R.A.



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he used to kick his wife for her carelessness in serving food from which she had failed to remove all the "stones". And, later on, when the first white trader came along, he is credited with having filled a pickle-jar with pearls at a cost of two or three pounds of tobacco, and the natives thought the white man a fool for buying such rubbish. I tried to find out if in the days before the white man came the children collected them, but they did not. Nature had somehow forgotten to bore little holes, and, as they could not be strung, they were thrown away with the shell. It is a long hark back to that dim and distant period when the great grey coral reef, now known as Kiriwina, first reared its rugged head above the surface of the water, but in all probability there clung to a certain portion of its sloping western side the mollusc ancestors of the lapi, which to-day forms the basis of the Trobriand pearling industry. That being so, how many millions of pearls, I wonder, in the years that have come and gone, have been scattered on the floor of this little Trobriand Island Bay.

In 1913, Bellamy procured at the request of headquarters some specimens of pearls *in situ* for Mr. Lyster Jameson, of London, who was experimenting in the production of pearls. This was an early sign of the beginning of the end of pearling activity, and with the coming of the first World War, the industry in the Trobriand Islands came practically to a standstill. Bellamy commented that this would give the lapi field the rest which, he was becoming convinced, was needed.

Bêche-de-mer or trepang, of an inferior quality known as "chalk" fish, was fished for by indentured labourers, chiefly from Dobu in the D'Entrecasteaux Group, who were employed by licensed pearl-buyers. Bellamy remarked that the Trobriand native did not take kindly to this work, looking down "with no little contempt upon this chasing of the somewhat stoical, white seaworm".

Bellamy's relations with the Europeans in the Trobriands were, for the most part, harmonious. Some who are still alive speak affectionately of him.

A tale is related of one pearler who took advantage of the cures obtained in the special hospital, and posted one of his native employees to divert the women discharged from the hospital to his bungalow. The pearler quarrelled with his procurer, who then revealed the practice to Bellamy. Very much annoyed, Bellamy remonstrated with the pearler, who refused to mend his ways. Accordingly, Bellamy gave one of his recently admitted female patients a holiday from hospital, making sure that she was diverted to the pearler's bungalow. Several days later a highly indignant pearler came to Bellamy complaining that uncured patients were being discharged from the hospital. However, when the pearler was cured of his infection he did not continue along his former lines of behaviour.

Bellamy's first house in the Trobriands was made from native materials in 1905. About five years later a new house was built from European materials at an approximate cost of £300 to £440. The house was situated on the edge of the Trobriand lagoon, with its multicoloured patterns of channels, reefs and sandbanks, the islanders poling their canoes to the fishing grounds and, away to the south-west, the outlines of the mountainous D'Entrecasteaux Group looming darkly blue above the horizon on a clear day.

Reports on the Government station and work in the Trobriands were made by various officers after visits of inspection. Moreton (1908), Resident Magistrate of the South-eastern Division, visited Losuia in June, 1907, and noted the "wonderful improvements in the place": crotons were planted everywhere and the whole station area was cleared and divided with coral walls. The jetty had been extended so that vessels could come alongside at low tide. The native people were well in hand. Murray (1908), Acting Administrator of Papua, stated that the presence of an Assistant Resident Magistrate in the Trobriands had had a very beneficial effect upon the natives and others. Symons (reported by Oelrichs, 1911, and Symons, 1912) visited the Trobriands when he was Resident Magistrate of the South-eastern Division and reported favourably on the station and the general condition of native affairs throughout these islands. Murray (1913), when Lieutenant-Governor, spoke of the success achieved by Bellamy's tact and perseverance with the Trobriand people. Some of these visits were unexpected, and still the reports were favourable—there was no rapid window-dressing for a scheduled visit. Bellamy's long period of service in the Trobriands led him to speak as a patriarch of "my people", and his letters revealed the satisfaction in the work he had accomplished: "I fancy my district will show its heels to the rest."

Bellamy was responsible for the making of a number of roads and the improving of many tracks in the Trobriands—for example, a buggy road was built from Losuia to Kaibola. He made his requests for this work from the villagers at that period which interfered least with their gardening activities. This was the interval between harvesting and the preparation of new garden areas. There were no complaints from the villagers about the considerable time spent on this work, as they realized the benefits which would come from improved communications.

Bellamy's annual reports fortunately went direct to Port Moresby and were not lost by incorporation within the annual reports of the South-eastern Division. These reports were always dated on the last day of June or the first day of July, and in the last few weeks of the official year Bellamy was very busy preparing the material for them. On one occasion he was very upset because they could not be sent off before August, as there were no ships going to Samarai. Bellamy had his annual medical report as well as the magisterial report to write—the Trobriands was the only station where the Government Officer performed the dual role of doctor and magistrate. In 1913 he was asked to prepare his reports in duplicate. Shortly after this a typewriter arrived at the station, and Bellamy became a one-finger typist. In addition to the annual reports there were monthly reports, both medical and magisterial.

The reports are unique in content and presentation, and give an intimate picture of Bellamy's ten years' work amongst the people of the Trobriand Islands. The summary in his annual report for the year 1909-1910 epitomizes his many activities for the year:

I take it that the question which lies behind every Annual Report is this: Is the District advancing or going back?

Before this can be satisfactorily answered, it must be clearly understood what is taken as constituting advancement.



FIGURE XII.

Head of Trobriand Islander—a councillor of Kaduwaga, Kaileuna Island. (Copyright of original reserved.)

If I go to a missionary he will, in all probability, tell me, "More church attendances, bigger collections, less thieving, less adultery". And he may be right.

If I go to a pearl trader, and ask him, "More men diving, more pearls coming out". And he may be right.

If I go to a copra trader or bêche-de-mer man, and ask them, the one will consider more coconuts, and the other more bêche-de-mer, as encouraging signs of advancement. And they may be right.

If I go to a native, to Tonlu the Chief, for instance, and ask him, he is almost certain to say, "More wives, more gardens, more food houses".

It would appear, then, that advancement may be taken as a molecule, whose constituent atoms spring from different sources, with the solitary exception, however, of my polygamist friend, Tonlu, whose polygamy alone I withdraw unconditionally.

To the Government Officer, however, who looks through his office window, or through where the window would be if there were one, and sees all impartially—missionary, trader and native—it appears that, no matter what things are to be taken as possible signs of advancement, cleaner villages, greater freedom from disease, better houses, cleaner habits, a growing recognition that behind the white man's gaol lies the white man's justice, whatever all these things may or may not be, they certainly are not symptoms of retrogression.

#### Acknowledgements.

Much of the material for this account has been generously supplied by people who knew Bellamy and remember him well. His widow, Mrs. L. V. Bellamy, has made available the papers, photographs and certificates of her late husband, and has also given information and helpful suggestions of possible sources of material. His niece, Miss G. Morgan, has forwarded letters written to her mother, which had been kept in case Bellamy wanted to write a book. Material was also obtained during the course of interviews with Mr. E. Bastard, Reverend M. K. Gilmour, Mrs. A. Lumley and Mrs. B. Waterhouse. This liberal response on the part of Bellamy's friends is a tribute in itself to the memory of the man. Their letters and those from several institutions which have been consulted are listed with the references.

The editor of *The Grey River Argus* kindly printed a request for information in his newspaper, and the response was fruitful. A similar request with like result was published by the editor of *Reveille*, the journal of the Returned Sailors, Soldiers and Airmen's Imperial League of Australia in New South Wales. Some published and unpublished work has been consulted at the Mitchell Library, Sydney, and the writer is grateful for the courtesies extended to him. The Honourable H. L. Murray graciously gave permission for the reading of the diary of Sir Hubert Murray, which is deposited with the Mitchell Library. The Chief Librarian of the Public Library, Melbourne, has made available the facilities of his research staff, and for this help the writer is grateful. Similar assistance was given by the Alexander Turnbull Library, Wellington, New Zealand. Considerable help has been given by the library staff of the School of Public Health and Tropical Medicine, Sydney.

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### ENURESIS AND PANTS-WETTING IN CHILDREN: A SURVEY OF SOME SIMPLE THERAPIES.

By JOHN BOSTOCK AND J. P. ECKERT,  
Brisbane.

THE literature on enuresis is sporadic and confusing. From time to time new remedies appear, and although preliminary reports are often encouraging, results are rarely duplicated. However, as enuresis is a major problem in childhood, not merely on the score of frequency, but also on account of its damaging psychological sequelae, the problem of its amelioration, if not cure, must continually be faced.

This survey does not claim discovery of a specific cure; until aetiological data are more precisely evaluated this is unlikely. It stemmed from research on the psychological factors in enuresis, and from a realization that although a preliminary investigation of treatment with the Crosby machine ("Dri-Nite") by one of us gave favourable results (Bostock, 1954) expense and technical difficulties militate against its universal use. Some children are refractory to this form of treatment, while others relapse after varying intervals. Electrical conditioning should not, therefore, be regarded as a specific remedy.

If enuresis could be relieved by simpler methods not requiring costly and intricate electrical apparatus, it was our opinion that such remedies should be the first line of attack. Electrical conditioning might be reserved for intractable cases.

This communication outlines research for a therapy suitable for use in general practice. Therapies investigated included the use of the following: (i) placebos; (ii) amphetamine sulphate and alarm clock awakening, with

or without chlorpromazine hydrochloride ("Largactil") or pipradol hydrochloride ("Meratran"); (iii) methscopolamine bromide ("Pamine"); (iv) bladder training.

#### Clinical Material.

Our findings are based on the treatment of 170 consecutive and unselected patients at the Brisbane Children's Hospital. The standard for the diagnosis of enuresis was the involuntary passing of urine into the bed during sleep at least three times per week. The ages of the patients ranged from four to fifteen years.

Those who believe precise numerical tabulation of clinical findings to be essential in every assessment of results may be disappointed that a review along these lines is not included. We would emphasize the numerous factors not readily subject to adequate statistical control (*inter alia*, real or alleged idiosyncrasies to drugs, intercurrent illnesses, school days, holidays, wet days, late nights, and an assortment of anxieties, interpersonal maladjustments and domestic dilemmas). Spontaneous remissions increase the difficulties; they materially add to the confusion and invalidate results. Over-enthusiasm of the investigator may create a subtle difficulty, in that parents of "failures" may be loath to return.

One suspects that many carefully documented series are misleading, as they do not refer to large numbers of enuretics who consult the doctor, occupy his time, yet do not appear in the list of cures or failures. In our series many patients came only once or twice, in spite of energetic efforts to persuade parents to persevere with treatment. Their attitude falls into line with an expectation of miracles and an abhorrence of working to achieve results. The researcher encounters parental apathy in another respect. We have endeavoured to obtain adequate follow-up of patients; but it is both surprising and frustrating to find how few respond to a postal questionnaire or an invitation to return for a final check. They accept our well-meaning efforts with an air of indifference. Possibly long years of dealing with soiled linen has a dampening effect over a wide psychological field.

#### Investigation of Therapies.

Our clinical experience with some simple forms of therapy will now be discussed.

##### Placebos.

From observations that an occasional enuretic is cured by suggestion, one might infer this to be the royal road to therapy. To serve as a control, a series of patients was given a nightly placebo; but the enuresis pattern remained unchanged after four weeks' treatment.

##### Alarm Clock and Amphetamine Routine.

Credit is to be given to S. I. Roland (1954) for his ingenious combination of an alarm clock and amphetamine in the treatment of enuresis. The rationale is based, in part, on the deep sleeping habits of enuretics, for which the sleep-opposing qualities of amphetamine provide an antidote. Roland advocates the administration of five milligrammes of *d*-amphetamine sulphate at bedtime for a trial period of one week. The bladder is emptied before the child goes to bed and he is instructed to set the alarm clock to ring four hours later. On hearing the buzzer, the child turns it off, passes urine and returns to bed. The parents are warned not to assist in any way. If the treatment is unsuccessful the dose of amphetamine is then raised to 10 milligrammes. Larger doses are found to be of no added value.

In Roland's series of 51 children, 47 were relieved. Our strict adherence to his routine did not duplicate these results. Many children had passed urine into the bed before the appointed hour of waking, some slept in spite of the alarm, others were too befuddled to turn it off or get out of bed and pass urine. None the less, we decided that the use of the alarm clock has merits. It gives a positive approach; it is so cheap as to be available in almost every home; it makes parent and patient alert to a treatment routine. If the time at which urine is passed is known, the alarm can be set in anticipation. Further-



more, the clock can be reset for those who pass urine involuntarily more than once. In this connexion the alarm clock is invaluable, since it gives information as to the frequency and timing of bed-wetting each night.

Another aid is the daily record kept by the mother. Not merely informative to the doctor, it is an obligatory reminder for the mother to persevere, and a scoring board of success for the child.

#### Tranquillizers.

As enuresis is often only one of a galaxy of other symptoms suggesting a generalized nervous imbalance, the next logical step appeared to be the addition of chemical tranquillizers. Considerable thought has been given by us to this aspect of management of the enuretic child. Although the word "tranquillizer" is used with reservations, we have applied it instead of the word sedative, as the latter usually connotes a certain sleep-producing quality, and in the treatment of enuresis one needs a "mood alterative" with the minimum of sleep production—as, for example, chlorpromazine hydrochloride ("Largactil"). However, a sleep-lightening effect would be even more advantageous, and in this connexion pipradol hydrochloride ("Meratran") has possibilities since it has brain-stimulating qualities and lowers the sleep threshold.

Chlorpromazine hydrochloride ("Largactil") and pipradol hydrochloride ("Meratran") were both given a trial in our series.

**Chlorpromazine Hydrochloride ("Largactil").**—Chemically, chlorpromazine hydrochloride is related to the antihistamine, promethazine hydrochloride ("Phenergan"). Its action in lessening states of agitation, anxiety and excitement, regardless of their origin, suggested that it might be of value for the emotionally disturbed enuretic child. At the start of this survey an attempt was made to treat enuresis by "Largactil" alone, in doses of 10 to 25 milligrammes three times a day. The treatment appeared to have no effect on the incidence of "dry nights", although in some cases the general nervous condition was improved. It was then given in association with the alarm clock and amphetamine routine. Although the results are not spectacular, they show an improvement over the alarm clock and amphetamine routine *per se* in those cases in which there are over-anxiety, undue irritability or temper tantrums.

**Pipradol Hydrochloride ("Meratran").**—Pipradol hydrochloride ("Meratran") was recently introduced into clinical medicine for the treatment of various psychiatric disorders, including narcolepsy. It has an amphetamine-like central stimulant action, but without undesirable side effects, and tends to enhance the mood without restlessness or euphoria. The suggestion that "Meratran" stimulates the subcortical area, which is the source of the arousing or awakening reaction, indicated to us that it might prove of value in those cases in which sleep was deep. In our cases "Meratran" was given in doses varying from one to two milligrammes at night. A perceptible improvement was noted in many cases, and this was reflected in an increased number of "dry nights". Often the parents reported that the children were more tractable and relaxed. Our impression is that in those cases in which there is severe anxiety or restlessness, "Meratran" is the adjuvant of choice. An indication of its utility is shown by a number of children who gave little response to other treatment, yet showed improvement coincident with "Meratran" therapy.

#### Methscopolamine Bromide ("Pamine").

For many years belladonna has been extensively employed in the treatment of enuresis. The use of methscopolamine bromide ("Pamine") seemed logical, since its pharmacological action is similar. It is closely related chemically to atropine and scopolamine and has anticholinergic activity. The rationale for using anticholinergic drugs in treating enuresis is their action in decreasing bladder tone by blocking transmission of contractile impulses over the sacral autonomic outflow. The resultant reduction in intravesical pressure increases bladder capacity. Apparently a comparable degree of sphincteric relaxation is not obtained.

In a series of cases "Pamine" was used in doses of 2.5 milligrammes (one tablet) twice daily in conjunction with a bladder-training routine. In addition, up to five milligrammes of "Pamine" were given at bedtime. Although no significant increase in the number of "dry nights" was obtained, this regime was found to be a specific treatment for daytime enuresis or pants-wetting, and in this regard will be discussed later.

#### Bladder Training.

About a third of all enuretic children have imperfect bladder control during the day, ranging from frequency and urgency of micturition to actual daytime enuresis. Care must be taken to exclude the dribbling incontinence of urine which betokens an organic lesion such as bladder-neck obstruction. This produces a constantly over-full bladder which is usually easily palpable even after micturition.

Out of our investigation into the bladder capacity of enuretic children a scheme for physiological bladder training was devised, measurement of urine volume being used as a gauge of effectiveness. Systems of training are conveniently based either on a record of the time intervals between micturition or on the actual measurement of urine passed from the bladder. In our experience the latter method is preferable for the following reasons: (i) Coercion of the perfectionist, nagging mother who over-estimates the time interval is avoided. Often she is unaware that the child has been "at the tap" and has a justifiably over-distended bladder. Such situations inevitably foster negativism in the child which reacts adversely on treatment. (ii) It affords visual proof to the parent that bladder capacity either is adequate or can be increased by training. All too frequently parents hold the defeatist viewpoint that the child has a "small bladder" and is, *ipso facto*, unlikely to be cured. (iii) It introduces a competitive game angle into treatment. The child takes a pleasure in asserting bladder prowess, and seeks to create records in his or her "manly" or "womanly" capacity.

Parents' records show that initial bladder capacities of three to four ounces in seven-year-old children, for example, could be increased to eight to ten ounces, retained with ease. Bladder training proved a useful additional aid to management and the method used will subsequently be described in detail.

After this brief incursion into the general problem of treatment the plan of a simple combined form of management will now be described. Although a brief resume of treatment cannot be expected to pin-point all difficulties which may arise, our experience with a large number of cases indicates that favourable results are achieved by a planned approach. Undoubtedly there are many failures; but these are offset by the gratitude expressed by parents whose children achieve success. Enuresis has the peculiar distinction of being a symptom which is the centre of a vicious circle involving every member of the household. When it disappears the change is widespread.

The following outline of management of an enuretic child is suggested, and emphasizes that the first step is an adequate preliminary investigation which will include both a physical and psychological assessment.

#### Outline of Management.

##### The Physical Assessment.

Treatment must in every case be preceded by careful evaluation of the physical factor; but the practitioner should not be overawed by the numerous organic syndromes having enuresis as a symptom. Reference to these was recently made in this journal (Hamilton, 1956), and paediatric text-books (Moncrieff and Evans, 1953; Nelson, 1954) cover this subject in detail.

Most organic lesions will be excluded if, as a routine procedure, it is ascertained (i) that the child is not suffering from dribbling incontinence of urine and that he has a free urinary stream, (ii) that the bladder cannot be palpated after micturition, (iii) that the urine is normal on examination and on microscopy of the centrifuged deposit.

It is stated that an organic basis may be found in from 8% to 10% of cases.

Failure of the child to improve after a period of treatment for enuresis may suggest that the diagnosis be reviewed and consideration given to a possible rare organic defect requiring investigation.

As an example of side-tracking by over-emphasis of the organic factor may be mentioned our experience with *spina bifida occulta*. In one of our series, radiological examination of the lumbo-sacral part of the spine was made as a routine procedure, and although a lamina defect was present in many cases, this had no bearing on treatment and did not alter the prognosis. These findings illustrate the need for taking a rational middle way between the Scylla of the organic and the Charybdis of the functional.

#### *The Psychological Assessment.*

Whatever view one has as to the etiology of enuresis, there can be no doubt concerning the importance of psychological factors.

An assessment must be made of both the family interpersonal relationships and the child's emotional state, since many enuretic children have gross emotional maladjustment.

**Correct Patient-Parent Rapport.**—The chief barrier to all treatment is the psychological condition of parent and child. Both are in the rut of habit which carries apathy in its train. Whatever means are adopted to relieve enuresis must be sufficiently impressive to make the household enthusiastic to continue treatment. Douglas Hubble has drawn attention to the need for the family doctor to "exchange his physicianly scepticism for a surgical confidence in the potentialities of successful therapy. Parents and children must be persuaded out of a wearied and fatalistic acceptance of their unhappy situation". Such a goal requires close cooperation, expenditure of time, clear explanation of the suggested therapy, and so far as is possible the creation of a happy domestic environment. Confidence is engendered by an optimistic approach, thorough examination, a clean-cut plan of therapy, and the daily record, which is shown to the doctor at regular intervals. A word of warning is necessary, since the oft-recommended superoptimism, which includes rewards for successes, not infrequently "boomerangs" to the patient's disadvantage when failure occurs. The ideal attitude is a calm approach which engenders in the patient a feeling of security, even if there are lapses and disappointments.

**The Child's Personality.**—In the press of medical practice it is obviously impossible to obtain complete assessment of the child's personality and emotional state. None the less, it is necessary to ascertain whether the enuresis is associated with over-emotionalism. Clues to this will be obtained by interrogation of the mother, and sometimes by the attitude of the child. The following brief epitome of 13 case histories in our series indicates types of situations which contribute to the enuresis background: (i) "anxious and extremely dependent—continual thumb-sucker"; (ii) "scared of her teacher"; (iii) "easily upset by trifles"; (iv) "suffers from crying fits"; (v) "irritable, cranky and subject to tantrums"; (vi) "anxious, scared of the dark"; (vii) "difficult, aggressive and truant"; (viii) "a sensitive child, thinks cubs were too rough and football too frightening"; (ix) "talks in her sleep, worried about bed-wetting"; (x) "frequent tantrums and fights with siblings"; (xi) "a very shy boy, a bad mixer"; (xii) "a very grizzly child"; (xiii) "extremely irritable—cannot cope with younger brother". The thirteen children were given tranquilizers—either chlorpromazine or pipradol hydrochloride—with considerable improvement in regard to both enuresis and mental outlook.

Lastly, one's responsibility does not rest with the treatment of the child, since not infrequently the chief disturbing factor is a maladjusted mother. Her direct treatment by advice and sedatives often favours the prognosis.

#### *Active Therapy.*

Once the preliminary investigation has been completed the way is open for active therapy. In our opinion it is

preferable to make a combined attack rather than employ the tentative exhibition of single remedies, since any preliminary failure prejudices subsequent treatment. We recommend the combined use of the daily record, an awakening device with amphetamine, physiological training of the bladder and the use of tranquilizers.

**The Daily Record.**—Whilst for research purposes uniform cyclostyled daily record sheets are essential, a small notebook kept by the mother is a simple method of ensuring a daily record of successes and other relevant details. The doctor can also use it as an *aide mémoire* to changes in treatment and their effectiveness.

**The Alarm Clock and Amphetamine.**—It is fortunate that, thanks to our gadget-minded outlook, an alarm clock is found in almost every home. The broad principles of combining its use with the administration of amphetamine sulphate to lower the sleep threshold have already been discussed. Precise details concerning the time for setting the alarm should be given to the patient. It should be set to ring before the anticipated enuretic episode; its timing is often known by the parents. In the absence of this information, the alarm is set for three hours after the child goes to bed. Should enuresis occur a second time during the night, the alarm is again set in anticipation.

Surprisingly, this nightly awakening results in little disturbance of household routine, even when two children sleep in the same room. The parent must be warned not to usurp the role of the alarm. The aim for the child is the maximum of self help; he should be master of the clock—set it, turn it off, pass urine and reset the clock without parental help. This counsel of perfection cannot be achieved in the very young, the mentally retarded and the deaf. The commencing dose of amphetamine is five milligrammes given on retiring. The dosage is increased to 7.5 or 10 milligrammes if the child does not wake easily. Higher amounts have no added value. This routine can be safely continued for two months or more if tangible benefits are being conferred. Ephedrine increased to the maximum of tolerance has also been used in lieu of amphetamine, but has troublesome side effects, including the production of night terrors. Care must be taken not to "cure" the enuresis by creating a state of complete nocturnal wakefulness.

**The Use of Tranquilizers.**—In those cases in which nervous maladjustment is suspected, the practitioner must be prepared for its treatment. The first approach is to deal with factors directly involved in its causation. This can be achieved by discussions with parent and child, by adjustment of the child's environment, and by correction of family interpersonal relationships—for example, change of school routine, holidays, advice on pets or hobbies *et cetera*. Often a simple adjustment to the child's way of life has profound results. In addition to the foregoing there is a place in treatment for the chemical tranquilizers. In this our choice has been previously restricted because of undesirable soporific effects. A trial of chlorpromazine hydrochloride, in doses of 10 to 25 milligrammes three times a day, or pipradol hydrochloride, one to two milligrammes at night, is indicated in those cases in which there is associated emotional disturbance, including disorders ranging from restless irritability to gross disturbance of mood. When there is deepened sleep, pipradol hydrochloride ("Meratran") is the drug of choice and has been suggested as an alternative to amphetamine.

**Bladder Training.**—Bladder training should be instituted as a routine procedure in all cases, as it mitigates those symptoms of frequency or urgency of micturition or actual pants-wetting which are so common in enuretic children, and which, while being socially disadvantageous, may tend to perpetuate the enuresis. In view of the fact that children spend so much time in school, any routine has to be adapted accordingly. Instruction is given on general lines to parent and child regarding the desirability of lengthening the intervals between micturition during the awakening hours. At the end of a suitable pre-arranged period once each day, measurement is made of the volume of urine passed by the child. This serves to gauge progress in increasing bladder capacity. In practice it will be found convenient to instruct the child to empty the bladder



(as is customary) just before going into school at 1.30 p.m. The next time of passing urine should be some time after he arrives home from school. When bladder sensation becomes just painful, urine is passed into a suitable receptacle, and a rough measurement (for example, marks on the outside of a glass bottle to which the urine has been transferred) serves as comparison with subsequent efforts. The child assists the mother in the measuring, and in our experience cooperates enthusiastically. A friendly, competitive spirit is induced, which is pleasantly at variance with the negativistic attitude engendered by coercive methods. The project can with advantage be continued for a fortnight or longer. An occasional child will be unable to retain urine during the approximate two and a half hours which elapse between his entering the school-room after the midday break and his return home. A compromise must then be effected by carrying out training at the week-end. Employment of an anticholinergic substance will assist those children with "irritable bladders" during the period of bladder training. In our cases, use was made of methscopolamine bromide ("Pamine") in a dosage of 2.5 milligrammes (one tablet) given in the morning and again at 4 o'clock in the afternoon.

#### Pants-Wetting.

Although pants-wetting and nocturnal enuresis are often associated, in our cases it was found that cure of the former was not reflected in a corresponding relief of the enuresis; this suggests an unrelated aetiology.

In a small series of children suffering from severe frequency, urgency of micturition, and actual pants-wetting, the use of an anticholinergic drug, methscopolamine bromide ("Pamine"), in a dosage of 2.5 milligrammes twice a day, together with bladder training as previously described, proved to be a specific cure. The associated nocturnal enuresis was not significantly altered during this therapy.

#### Summary.

An outline of research to discover the potentialities of some simpler methods of treatment on enuresis and pants-wetting is presented.

Emphasis is given to the importance of excluding underlying organic lesions, to the need for psychological appraisal of the child and parent and of interpersonal relationships, and to the over-all planning of therapy on general principles.

In addition a combined approach is suggested, by means of the following measures: (i) alarm-clock awakening assisted by amphetamine; (ii) a routine of bladder training; (iii) the exhibition of chlorpromazine hydrochloride ("Largactil") or pipradol hydrochloride ("Meratran") in cases in which there is underlying emotional maladjustment.

Pants-wetting is regarded as therapeutically unrelated to enuresis and amenable to a possibly specific remedy, which includes the use of bladder training and the exhibition of an anticholinergic drug, methscopolamine bromide ("Pamine").

Attention is drawn to the factor of parental apathy in this condition, and to its deleterious influence on prognosis, treatment and the clinical evaluation of results.

#### Acknowledgements.

Our thanks are due to the generosity of May and Baker (England) for placing "Largactil" at our disposal, to the William S. Merrell Company, of Cincinnati, United States of America, for donating "Meratran" and sending it by air freight for this research, and also to Upjohn of England for supplies of "Pamine" for clinical trial. Finally we wish to acknowledge our indebtedness to Dr. Aubrey D. D. Pye, Medical Superintendent of the Brisbane General Hospital, and Dr. D. C. Fison, Medical Superintendent of the Brisbane Children's Hospital, for permission to use the clinical material. Lastly, gratitude must be expressed to the Government of the Commonwealth of Australia and to the University of Queensland for their research grants, which made this research possible.

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#### THE LATE FOLLOW-UP OF GYNÆCOLOGICAL REPAIR OPERATIONS.

By E. C. WOOD,

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THE immediate results of surgery performed for genital prolapse are usually satisfactory. There is some doubt, however, whether this improvement is maintained. In an endeavour to assess the late results, 50 patients who were treated between 1951 and 1953 were again interviewed and examined in the latter half of 1956. These patients had been operated on by members of the Professorial Unit at The Royal Women's Hospital.

The patients' ages varied from twenty-seven to eighty years, and 22 were post-menopausal. Only one patient was nulliparous.

The numbers of each operation performed are shown in Table I. Thirty-five Manchester repairs were performed for varying types of prolapse. There were four patients with procidentia, 18 with uterine descent to the vulva and beyond and 13 with uterine descent of lesser degree. A cystocele and rectocele were present in nearly all cases and an enterocele in 13.

The symptomatic results have been analysed in Table II. The majority of patients complained of "a lump coming down", and this was cured in all except two. Stress incontinence of urine was relieved in three of every four cases. Frequency of micturition was usually not relieved. In one patient persistent post-operative dysuria occurred although the cause of this could not be ascertained. Abdominal pain and backache were the main complaints of 10 patients, and relief was obtained by surgery in all cases. Vaginal discharge resulting from chronic cervicitis was cured by amputation of the cervix in only four of nine patients.

An assessment was made of sexual function after a Manchester repair procedure. Fifteen patients had no intercourse after the operation, owing to the death, absence or incapacity of the husband. Of the remaining 20, 10 were unaffected by the operation. Five of these 10 patients continued to obtain a vaginal orgasm. Ten patients suffered from some post-operative sexual disability. One of these was afraid of having intercourse, as she thought a further pregnancy might be harmful. Three patients complained of sexual anaesthesia. The remaining six had dyspareunia. In one, orgasm still occurred, although a narrow introitus caused superficial dyspareunia. In two cases the vagina was narrowed and penetration was painful. In the other three patients complaining of dyspareunia the anatomical result was satisfactory, and the dyspareunia may have been psychosomatic in origin.

The anatomical results of the Manchester repair were analysed. The uterus was well supported in all cases. There were eight small cystoceles, but these did not cause symptoms. In six patients a rectocele was present; five of these rectoceles were small, and one was very large and protruded beyond the vulva. Nine enteroceles were repaired, and only one recurred slightly. This defect occurred in two other patients in whom the pouch of

Douglas was not explored at operation, and in one of these the enterocele protruded beyond the vulva.

When asked about the result of the operation, 28 patients stated it was a success, six said that their condition was improved, and one was not satisfied with the result. The last-mentioned patient had post-operative dyspareunia.

Vaginal hysterectomy was performed 11 times. Four of the patients had procidentia, six had descent of the uterus

for a vault prolapse following a vaginal repair, and now has a small rectocele. The one vaginal repair without cervical amputation and the combined operation of abdominal hysterectomy and vaginal repair both produced a satisfactory result.

#### Discussion.

Although the results of the Manchester repair and vaginal hysterectomy were similar, the series was too small to allow any conclusions to be drawn as to their relative merits. Symptomatic relief of a "lump coming down", pain and stress incontinence was usual. Frequency of micturition was not relieved by surgery. When this condition is present, urological investigation should be undertaken prior to operation. Simple psychotherapy and perineal exercises may sometimes cure this complaint. Amputation of the cervix frequently failed to cure the discharge resulting from chronic cervicitis. This failure was probably due to low amputation of the cervix, the patient being left with chronic endocervicitis of the cervical remnant. Chronic cervicitis should therefore be treated by vaginal hysterectomy, high cervical amputation or radical diathermy prior to the Manchester repair.

It was found that vaginal orgasm was possible after amputation of the cervix or vaginal hysterectomy. However, sexual disability commonly followed the Manchester repair. The exact cause of this was difficult to assess, as it may not always be possible to determine the anatomical and physiological adequacy of a vagina for sexual intercourse, and in addition psychosomatic factors may not always be apparent. The emotional stress of a surgical procedure, the fear of damage to sexual passages, the fear of subsequent pregnancy or a recurrence of the prolapse, may all alter the appreciation of sexual relations. After consideration of these difficulties, it was clear that post-operative sexual disability was more frequently psychosomatic than organic in origin. Pre-operative and post-operative guidance of the patient's sexual life may diminish this sequela of surgery.

The anatomical results of the operations were satisfactory in all except two cases. In one, a complete eversion of the vagina occurred two years after vaginal hysterectomy, and in the other an enterocele developed one year after a Manchester repair. It appeared that enteroceles were equally well repaired during either the Manchester operation or vaginal hysterectomy.

#### Summary.

1. Fifty patients who underwent repair operations at The Royal Women's Hospital, Melbourne, have been clinically assessed three to five years after the operation.
2. The results of the Manchester repair and the vaginal hysterectomy were similar.
3. Cure of pain, "a lump coming down" and stress incontinence was usual.
4. Frequency of micturition was not relieved by surgery. Investigation and treatment of this symptom should be carried out prior to operation.
5. Amputation of the cervix frequently did not cure the discharge from chronic cervicitis.
6. Sexual disability was common after the Manchester repair. This was more frequently psychosomatic than organic in origin. Vaginal orgasm was possible after either the Manchester repair or the vaginal hysterectomy.
7. The anatomical results of surgery were satisfactory in all except two patients. Enteroceles were repaired successfully during either the Manchester repair or the vaginal hysterectomy.
8. There was no recurrence of prolapse after the second post-operative year.

#### Acknowledgement.

I wish to thank Professor Lance Townsend for permission to interview the patients under his care, and also for his help in preparation of the paper.

TABLE I.

The Numbers of Each Operation Performed on 50 Patients with Genital Prolapse.

Type of Operation.	Number of Cases.
Manchester repair	35
Vaginal hysterectomy	11
Vaginal repair without cervical amputation	1
Abdominal hysterectomy	1
Abdominal hysterectomy and vaginal repair	1
Posterior colporrhaphy	1

to the vulva and beyond, and one had uterine descent of lesser degree. An enterocele was present in all except two. The symptomatic results of the operation are shown in Table III. These results are similar to those of the

TABLE II.

The Effect of Manchester Repair on the Symptoms Associated with Genital Prolapse.

Symptoms.	Cured.	Relieved.	Unchanged.	Worse.	Total.
"Lump"	30	2	—	—	32
Stress incontinence of urine	10	5	4	2	21
Frequency of micturition	2	4	11	3	20
Abdominal pain and backache	9	—	—	1	10
Discharge	4	—	4	1	9

Manchester repair. Sexual function remained unaffected in six patients, five of whom still attained a vaginal orgasm. Two other patients now failed to attain orgasm, although they still enjoyed sexual relations. The remaining

TABLE III.

The Effect of Vaginal Hysterectomy on the Symptoms Associated with Genital Prolapse.

Symptoms.	Cured.	Relieved.	Unchanged.	Worse.	Total.
"Lump"	10	—	1	—	11
Stress incontinence of urine	4	1	1	1	7
Frequency of micturition	3	—	—	2	5
Abdominal pain and backache	4	—	—	—	4
Discharge	—	—	—	—	—

three had ceased marital relationships prior to the operation. The anatomical results were satisfactory, except for two small cystoceles and one complete eversion of the vagina. The eversion occurred two years after operation for procidentia. Five enteroceles were successfully repaired. When asked about the result of the operation, 10 of the 11 patients regarded it as successful.

Of the remaining patients in this series, one had a posterior vaginal repair for a large rectocele and now has a small cystocele. Another patient had a total hysterectomy



## Reports of Cases.

### PERIODIC HEADACHE ASSOCIATED WITH CEREBRAL ANEURYSM, WITH REPORT OF A CASE SUCCESSFULLY TREATED BY SURGERY.

By GEOFFREY VANDERFIELD,

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NOWADAYS, with the use of cerebral angiography, cerebral vascular malformations and aneurysms are frequently demonstrated in a neurosurgical centre. Sometimes these patients give a history of long-standing headaches, which have been regarded as migraine.

This sequence and combination have been described by MacKenzie and others, but so far no reports have been seen as to the effect of surgery on the headache in such patients, so that it is thought that this case is of sufficient interest and importance to present.

#### Clinical Record.

A., a forty-nine-year-old process worker, was admitted to the Royal Prince Alfred Hospital on February 28, 1955, because of the sudden development over three days of complete right ophthalmoplegia associated with severe headaches. For seventeen years he had been prone to severe headaches, which were considered to be migrainous. The attacks would begin with blurring of vision followed by bifrontal headache, then nausea, and sometimes vomiting. They lasted until he had "slept them off". The attacks might occur for no clear reason, but would always follow eating certain things, including chocolate and fatty foods, and drinking beer. In an attack, it was said that he looked very ill. His mother also suffered with "sick headaches", diagnosed as migraine, but he did not know the precise nature of her complaint.

On examination of the patient, no abnormality apart from the complete right ophthalmoplegia was found. Lumbar puncture failed to reveal any blood in the sub-arachnoid space.

A right common carotid arteriogram displayed the presence of a large, elongated, sacular aneurysm arising from the distal part of the internal carotid artery, and extending backwards and downwards (see Figure 1). Left carotid angiography disclosed no vascular abnormality on that side, and when it was performed with the right carotid artery compressed in the neck, good cross filling via the circle of Willis was demonstrated.

It was presumed that sudden expansion of the aneurysm had occurred to involve the adjacent third, fourth and sixth cranial nerves. To prevent disastrous aneurysmal rupture, which seemed imminent, direct operation was advised. This treatment was preferred to ligation of the common carotid artery in the neck, which would give less effective protection against haemorrhage, and which would carry some risk of causing hemiplegia, despite the good cross filling.

Operation was carried out on March 3, 1955, under general anaesthetic administered through an endotracheal tube. As a preliminary step, the right common carotid artery was exposed in the neck and a special clamp loosely applied to it, so that the artery could be temporarily occluded to control serious haemorrhage from its intracranial branches should this occur.

Then, with the patient lying supine, the cranial operation was commenced. After a right frontal scalp flap had been reflected (see Figure II, Diagram 1), five burr holes were made in the skull as indicated in the above-mentioned diagram; as the lower two were covered by temporalis muscle, this was split to enable each to be introduced. The bone between each of the holes was cut, and finally the bone flap was elevated, its attachment to the temporalis muscle at its base being retained.

Through a small dural incision near the postero-medial corner, a fine rubber catheter was introduced into the frontal horn of the right ventricle, to drain the ventricle continuously throughout the intradural part of the operation. After this, the *dura mater* was opened transversely around the anterior and lateral margins of the cranial opening. The under surface of the frontal lobe of the brain was protected with strips of *gutta percha* and "Linten", and then retracted and elevated, to enable the right optic nerve to be brought into view beneath the frontal lobe. The brain, slackened with the ventricle emptied, was easily retracted further with the release of fluid from the basal cisterns. The basal arachnoid was broken down by gentle dissection, to expose first the internal carotid artery passing upwards and laterally from beneath the optic nerve. Then with a little more dissection, the aneurysm was brought into view (Figure II, Diagram 2). It arose by a narrow neck, about one centimetre

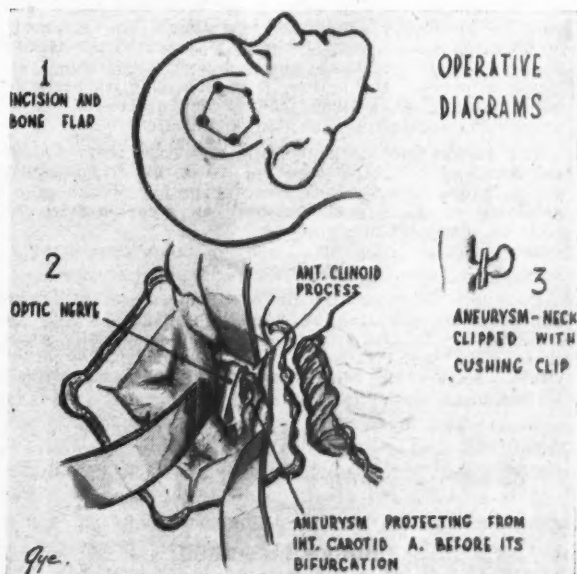


FIGURE II.

before the bifurcation of the internal carotid artery. It was sacular, and projected almost directly backwards and downwards. The fundus of the aneurysm and the third nerve were not seen. At first, despite the antero-lateral approach, the aneurysm was largely hidden by the carotid artery lying in front of it. However, by clamping the common carotid artery in the neck, thus further reducing the tension in the brain and carotid tree, the carotid artery was displaced medially to bring the aneurysm more into view, and it was then just possible to apply the Cushing silver clip across its neck with special curved forceps. This caused some minor bleeding from small vessels in the vicinity, but it was soon controlled with a muscle stamp. The clamp, which had been tightened for five minutes, was then loosened on the artery in the neck. The artery again pulsated fully, and as the clip was observed to stay in position and the field remained dry, the closure was begun. The dural incision was approximated with interrupted fine black silk sutures; the brain was reexpanded by refilling the ventricle with Ringer's solution before the catheter was removed. Then the bone flap was returned, being fixed in place by a few sutures through the pericranium. Finally the scalp was united in two layers of interrupted black silk with tube drainage.

After dressings had been applied to the head, the clamp was removed from the neck wound, which was then closed.



The patient's condition gave no concern throughout and was good at the end. He made a steady recovery from the operation, and was allowed home on March 18, after follow-up angiograms had shown the aneurysm to be satisfactorily excluded from the circulation (see Figure III). Recovery of eye movements had already begun by this time and continued steadily till January 14, 1957, when he was last seen for a routine follow-up examination. He had good lateral movements of the eye, but very little vertical movement. However, he had learnt to compensate for this by moving his head, rather than his eyes, to look up or down. Since the operation, nearly two years earlier, he had had no headache, and could now eat fatty foods and chocolate and drink beer without any untoward effects.

#### Comment.

The absolute cure of symptoms since the operation seems to prove conclusively that in this case, aneurysm of the internal carotid artery had been responsible for periodic headaches simulating migraine. The diagnosis of migraine would seem acceptable in view of the family history, visual disturbance and vomiting, even though, on closer inspection, the nature of the visual disturbance is not typical, and the headache is not unilateral, as is usually implied in the definition of migraine.

The responsible mechanism in this case may explain the aetiology in some cases of what has been called ophthalmoplegic migraine, when temporary weakness or paralysis of the eye movements has occurred with or after an attack of migraine.

#### Conclusion.

In severe and disabling migrainous headache, it is possible that investigation by cerebral angiography may be of assistance in diagnosis and treatment, especially when there have been transient neurological signs or other clinical features to suggest an underlying vascular malformation or aneurysm.

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### Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"An Annotated Bibliography of the History of Medicine in Australia", by Bryan Gandevia, M.D. (Melbourne), M.R.A.C.P., with a foreword by Sir Gordon Gordon-Taylor, K.B.E., C.B., F.R.C.S.; 1957. Monographs of the Federal Council of the British Medical Association in Australia, Number 1. Sydney: Australasian Medical Publishing Company Limited. 9½" x 7", pp. 140. Price: 35s.

A guide to the more readily available literature on Australian medical history.

"Pediatric Clinics of North America: Symposium on Pediatric Hematology"; May issue; 1957. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9" x 6", pp. 277, with illustrations. Price: £6 15s. per annum.

Contains 13 articles on haematological subjects plus an article on poliomyelitis.

"Study Group on the Ecology of Intermediate Snail Hosts of Bilharziasis", World Health Organization Technical Report Series No. 120; 1957. Geneva: World Health Organization. 9½" x 6½", pp. 40. Price: 1s. 9d.

The title is self-explanatory.

"The Plea for the Silent", with an introduction by Dr. Donald McI. Johnson, M.P., and Norman Dodds, M.P.; 1957. London: Christopher Johnson. 7½" x 5", pp. 176. Price: 12s. 6d.

The self-told stories of former certified mental patients.

"Essentials of Clinical Proctology", by Manuel G. Spiesman, M.D., B.S., LL.D., F.I.C.P., and Louis Malow, M.D., B.S., F.A.C.S.; Third Edition; 1957. New York and London: Grune and Stratton. 9" x 6", pp. 324, with 129 illustrations. Price: \$8.75.

The volume is the outgrowth of lectures to medical and post-graduate students. It is designed to cover the essentials, not the details, of the entire subject of proctology.

"Hemorrhagic Diseases", by Armand J. Quick, Ph.D., M.D.; 1957. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 9½" x 6", pp. 452, with 37 illustrations. Price: £5 3s. 6d.

A comprehensive monograph covering both clinical and laboratory aspects of the subject.

"A Student's Histology", by H. S. D. Garven, B.Sc., M.D. (Glas.), F.R.S.E., F.R.F.P.S.G.; 1957. Edinburgh and London: E. and S. Livingstone, Limited. Price: 55s.

The author is Reader in Histology, Institute of Physiology, University of Glasgow.

"Sports Injuries: Their Prevention and Treatment", by Donald E. Featherstone; 1957. Bristol: John Wright and Sons, Limited. 8½" x 5½", pp. 204, with 45 illustrations. Price: 35s.

The author is a physiotherapist with much experience in the field of sport.

"Macewen of Glasgow: A Recollection of the Chief", by Charles Duguid, M.A., M.B., Ch.B., F.R.F.P.S. (Glas.), F.R.A.C.S.; 1957. Edinburgh and London: Oliver and Boyd. 8½" x 5½", pp. 58. Price: 7s. 6d.

A memoir of Sir William Macewen, sometime Regius Professor of Surgery in the University of Glasgow, by a former student and associate.

"Leukemia and Aplastic Anaemia in Patients Irradiated for Ankylosing Spondylitis", Medical Research Council of the Privy Council Special Report Series No. 295, by W. M. Court-Brown, C.B.E., M.B., B.Sc., F.R.C., and R. Doll, C.B.E., M.D., F.R.C.P.; 1957. London: Her Majesty's Stationary Office. 9½" x 6", pp. 142, with figures and tables. Price: 10s. 6d.

Based on the study of the case records of over 13,000 patients presumed to have ankylosing spondylitis and given X-ray treatment for this condition.

"Developmental Stages of Filariae in Mosquitoes", South Pacific Commission Technical Paper No. 104, by M. O. T. Iyengar; 1957. Noumea: South Pacific Commission. 10" x 8", pp. 11, with eight illustrations. Price: 2s. sterling.

A record, freely illustrated with photomicrographs and line drawings of the various stages in the development of filarial nematodes in mosquitoes.

"Occupational Diseases of the Skin", by Louis Schwartz, Louis Tulipan and Donald J. Birmingham; Third Edition; 1957. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 9½" x 6", pp. 984, with 189 illustrations and two plates in colour. Price: £9 18s.

An attempt by the authors to give the medical profession, in a detailed and systematized manner, information on modern industrial skin hazards.

"Trophoblastic Growths: A Clinical, Hormonal and Histopathological Study of Hydatidiform Mole and Chorionepithelioma", by J. Smaibreak, M.D.; 1957. Amsterdam, London, New York, Princeton: Elsevier Publishing Company. 8½" x 6", pp. 342, with 66 illustrations and nine tables. Price: 72s.

A survey of the current knowledge of trophoblastic lesions, based on a study of the literature and a review of all recorded case histories at Utrecht University Clinic during a period of twenty-six years.

"A Manual of Stomatology", by J. P. Walsh, M.B., B.S., D.D.Sc. (Melb.), L.D.S. (Vic.), F.D.S.R.C.S. (Eng. and Edin.), M.D.S. (N.U.I.), Hon. Causa; 1957. Christchurch: N. M. Fryer, Limited. 7½" x 4½", pp. 144, with 37 illustrations. Price: 30s.

Based on a course of ten lectures given to fifth year medical students by the Professor of Dentistry in the University of Otago.

# The Medical Journal of Australia

SATURDAY, AUGUST 24, 1957.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

## THE TEACHING OF HYGIENE AND PUBLIC HEALTH.

EARLY in this century the subject of public health took only a minor place in the medical curriculum—a dozen or so lectures on drains, sewage disposal, water supplies and infectious diseases; that was all. How different now! Its title enlarged to include preventive medicine, the subject has become an important branch of medicine which every doctor—whatever his special *forte*—should know and practise. Back in 1922 the General Medical Council prescribed that throughout the course the attention of the student should be directed to the preventive aspect of illness. Students now are taught that to cure is not enough. In Australia, F. S. Hone, of Adelaide, was an early and strong proponent of the idea of studying the sick man *in toto*, and not merely his disease. The home conditions, the family, the work-place, the life habits of the patient—on all those features the student had to get clear information, and he had to study its bearing on the patient's illness.

An illuminating brochure recently issued by the World Health Organization, and prepared by two leading British teachers, F. Grundy and J. M. Mackintosh,<sup>1</sup> deals with trends in the teaching of hygiene and public health in nineteen countries in Europe. The study is based on the work of two conferences arranged by the World Health Organization. At the first meeting, at Nancy (France) in 1952, undergraduate teaching was discussed; at the second, held at Göteborg (Sweden) in 1953, post-graduate training

was the theme. Jacques Parisot, former Dean of the Faculty of Medicine in the University of Nancy, who presided at both meetings and wrote the introduction to the book, calls on "medical training institutions to improve and adapt themselves to the continued advances in both medicine and social welfare", and he urges "the physician in his daily practice not, as heretofore, to confine himself to curative medicine: he should engage at the same time in preventive and social activities . . . he must be trained to recognize the influence of the social as well as the physical environment". Grundy and Mackintosh refer to the present problems of terminology. They state that social medicine, in particular, has no settled meaning. It is sometimes linked with what J. A. Ryle<sup>2</sup> has called "social pathology"—"good social medicine must have its foundations in a sound social pathology". In their monograph the expression "hygiene and preventive and social medicine" refers to "the subject matter usually included under the headings of public health, social medicine, preventive medicine, and epidemiology in teaching practice" . . . a wide field indeed. They make no attempt to elaborate firm conclusions on their subject, but rather to bring forward the main features of current practice in teaching. Their excellent review is worth careful study by university authorities.

In discussing changing concepts in public health, Grundy and Mackintosh eulogize the influence of Johann Peter Frank, the German pioneer in public health. Frank was "probably the first who, as a teacher, urged investigations into the causes of diseases in the homes of the people"; he said that the principal barriers in the way of health were poverty and ignorance. The public health idea steadily developed. After the era of environmental sanitation and sanitary engineering came the phase of infectious diseases control, stimulated by the rise of bacteriology in the latter part of last century. Now all diseases are to be thought of "in the preventive aspect", and epidemiology may include the study of the spread and the ecology of any disease, and not only of the infections. In an address at a recent conference on health education, Henry Shannon<sup>3</sup> stressed the good work of the family doctor in that field. Ample opportunities enable him to advise his patients in ways to maintain health and to prevent illness. In his daily work the thoughtful physician repeatedly asks himself: "Could this disease have been prevented?" It is fitting that Grundy and Mackintosh should discuss "teaching with the help of the general practitioner" in some detail, and should view favourably the University of Edinburgh's general practice teaching unit—"though it is probably too early to make a final assessment, or to decide how it might be adapted elsewhere. . . . The unit is one means of taking social medicine into the lives of the people, of enabling the student to get a view of medicine in the setting of family practice and of giving him an opportunity to participate in the professional teamwork he heard about in lectures". The university student health service is also discussed as "an instrument of teaching; it can be valuable in that way, as René Sand pointed out.

Preventive medicine takes a key position in the present-day medical curriculum, because it is essentially an

<sup>1</sup> "The Teaching of Hygiene and Public Health in Europe: A Review of Trends in Undergraduate and Post-Graduate Education in Nineteen Countries", by F. Grundy, M.D., M.R.C.P., D.P.H., and J. M. Mackintosh, M.D., LL.D., F.R.C.P., D.P.H.; 1957. Geneva: World Health Organization. 94" x 64", pp. 256. Price: fl 5s.

<sup>2</sup> "Changing Disciplines", 1948.

<sup>3</sup> M. J. AUSTRALIA, 1957, 1:857 (June 22).



integrating subject. Its study is based on practically every subject in the course, and it links them. The efficient public health practitioner must have a good general knowledge of all the other branches of medicine. Of the nineteen countries studied in this brochure, Sweden is presented as having the most interesting programme. There are preparatory and final courses in public health and preventive medicine, and in social medicine—the latter embracing the personal medico-social aspects of modern public health. Altogether 164 hours of the students' time is given to the work. In Sweden, as in many places now, the lectures and demonstrations are planned to spread over the whole course; even in the first year an introductory series of lectures deals with basic principles of social medicine. Developments in the United Kingdom are in the same direction. However, in most English provincial schools, in the undergraduate curriculum the time devoted to environmental hygiene and sanitation has been reduced. There is also "a tendency to curtail teaching in occupational health and personal hygiene for lack of time, though their importance is recognized". (Time is the constant difficulty. Accretions to knowledge in every branch of medical study add to the demands on the students' time, and pruning seems a problem.) In the teaching of preventive medicine a close link with official health departments is essential; most schools maintain that association. In the provincial universities the professor directing the public health course is generally a part-time university officer whose major duty is that of medical officer of health for the city.

In Australia the sole institution for post-graduate academic studies in public health is the School of Public Health and Tropical Medicine associated with the University of Sydney. As the population of the Commonwealth grows, the time will surely come when each State should have its own school. That is a desirable aim, for public health training must be appropriate to the health and social policy of the local community, and post-graduate training is important. Here lies an opportunity for Branches of the British Medical Association to foster the active development of sections of public health and preventive medicine within their organization. No more effective means could be devised of stimulating the interest of the young doctor in public health. Certainly it offers (for him) no immediate monetary return, but "thinking preventively" will make the doctor's daily tasks more satisfying in the performance, give his title of "doctor" its real significance, and enhance his status in the community. By that type of activity the profession will do much to promote community health, and in so doing will bring high credit to itself.

## Current Comment.

### KWASHIORKOR.

"THIS perplexing disease of dietary origin", to quote from an editorial on kwashiorkor in the *British Medical Journal* of June 18, 1955, has been the subject of intensive study in many lands chiefly tropical. According to J. F. Brock (1954), "it is the most serious and also widespread nutritional disease known to medical and nutritional

science". In a symposium on "Nutritional Factors and Liver Diseases" organized by the New York Academy of Science in 1954, it was declared to be a problem of global importance and to present consequences of dietary insufficiency of outstanding urgency. Briefly kwashiorkor is found amongst coloured children and is characterized by fatty liver, dermatosis with pigmentation, oedema, abdominal distension, vomiting, diarrhoea and rapid loss of vigour. Too often it is complicated by malaria and intestinal worms. Different descriptions have been given by different observers—protein malnutrition, multi-deficiency disease, malnutrition with oedema, malnutrition with dermatosis, maize-eater's disease and many others. A few names are picturesque but not helpful, such as "syndrome of the changeling" and "malignant malnutrition", the latter being popular in English-speaking lands. The Omnia Medica Publishing Company of Pisa is to be congratulated on bringing out a comprehensive and scholarly work<sup>1</sup> on this deficiency disease, and this well-documented study will be welcome in nutritional circles and amongst those who are interested in tropical medicine and hygiene. The suggested treatments are as varied as the names—protein of high biological value, parenterally administered amino acids, blood transfusion, casein or dried milk, fish meal etc.; and it has been seriously advocated that, as the little patient's stomach contains a low concentration of hydrochloric acid, predigestion of protein with this acid should be employed. By regulating proper diet the disease should vanish, according to experienced workers in this field, and cures should be expected in 95% of cases. In the *British Medical Bulletin* of May, 1957, devoted to liver problems, there occurs the statement: "The most securely established form of dietary liver injury in man is the fatty liver of kwashiorkor. This is the only case in which we have good evidence of a direct effect of diet on the liver. Striking though the picture is pathologically, this can hardly be called a disease, since recovery, both structural and functional, is the rule."

Kwashiorkor has not been observed amongst Australian aboriginal children, even in the most degraded types, and presents no problems to those doctors who practise in the Commonwealth; but when medical men are confronted with jungle conditions in New Guinea or other tropical lands, the information given in this volume will be most useful.

### POST-RADIATION CANCER.

DURING the first World War a young girl, sixteen years of age, took a job for eighteen months painting the figures on watch faces. She pointed the brush with her lips, as was the custom, and in so doing, she ingested some of the radium in the luminous paint. Helen Woodward<sup>2</sup> records that in 1956—that is, thirty-nine years later—like so many before her, she developed an osteogenic sarcoma. Her breath contained radon, and radioautographs showed that her epiphyseal regions still contained radium. This, the tragedy of the luminous dial painters, is something with which we are all fairly familiar, but we are not equally familiar with the tragedies of therapeutic irradiation. C. Lenore Simpson and L. H. Hempelmann<sup>3</sup> have now published the details of their investigation of neoplasia following X-ray treatment of the thorax in infancy. They traced 1502 children who had received irradiation to the thymus during the preceding twenty-seven years, and information was obtained also of 1933 of their untreated siblings. They found 18 malignant tumours, chiefly of the thyroid gland, among the treated children. This is a significant increase over the expected number and over the incidence among the siblings. In addition, certain benign lesions such as exostoses were more frequent. The tumours followed doses of X rays which were smaller than those usually considered to be carcinogenic.

<sup>1</sup> "II Kwashiorkor", by A. Bendani and C. Bellucco; 1957. Pisa: Edizioni "Omnia Medica". 92" x 62", pp. 220, with 42 illustrations. Price: L. 2000.

<sup>2</sup> *Cancer*, January-February, 1957.

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That therapeutic irradiation may cause osteogenic sarcoma many years later is further borne out by the report of Miguel Cruz, Bradley L. Coley and Fred W. Stewart.<sup>1</sup> These authors describe 11 new cases of post-irradiation bone sarcoma and record the fate of the subjects in 11 cases previously published from the Memorial Centre of New York. The new cases occurred at intervals varying between four years and twenty-three years after the irradiation. In seven cases, the conditions for which irradiation was given were benign. Unfortunately some of the benign conditions occurred in children, and amongst this group we find two examples of bone cyst of the humerus and one of cystic hygroma in the neck. Three giant-cell tumours of bone were treated by irradiation and were followed later by the development of sarcoma. In each of these cases the histological picture was of spindle-cell sarcoma of bone. One may perhaps claim that this is the type of sarcomatous transformation which occurs spontaneously in giant-cell tumours. However, the intervals of fifteen and a half years, twenty years and twenty-three years between the cessation of radiotherapy and the onset of sarcoma suggest a causative relationship. In the other cases, the relationship between irradiation and sarcoma seems well proved. Nine of the subjects have died, but the two survivors have remained free of disease for seven and four years respectively.

The incidence of post-radiation osteogenic sarcoma is not known, but it is a hazard which must be taken into consideration before radiotherapy is applied for any benign condition, especially in children. Importunate clinicians with the best motives in the world often persuade the radiotherapist to treat patients from whom lesions of doubtful malignancy have been removed. One sees steatorrhea transform a healthy young girl into an invalid because she has had an ovarian cystadenoma removed. Another patient is brought to the verge of suicide by the pain of radionecrotic ulceration. These are not uncommon sequelae of therapeutic irradiation; but it seems to be that only by referring to the more dramatic though rarer occurrence of malignancy can one draw attention to the ill-effects of haphazard irradiation.

#### LARYNGOCELE.

LARYNGOCELE is a rare swelling in the neck which presents no great difficulty of diagnosis if kept in mind. Less than 100 cases have been reported, and very few of these were bilateral as was a case recently reported by E. G. Wallace.<sup>2</sup>

In describing laryngocele, Wallace states that it is a cystic dilatation of the laryngeal ventricle; according to the state of development, it may be classified as internal, external or combined. The internal laryngocele is deep to the thyrohyoid membrane, while the external laryngocele has herniated through the membrane into the tissues of the neck. The combined form is partly deep to and partly external to the thyrohyoid membrane. Forced respiratory effort of any type may cause inflation of the cyst. It may usually be emptied by pressure on the sac. A laryngocele forms when either excessive and constant or frequent endolaryngeal pressure occurs, as in loud speakers, horn-blowers etc., and when obstruction to the exit of air and secretions occurs, as in some instances of papilloma or carcinoma. In some cases no such factors as these appear to be evident. An internal swelling may produce voice changes or respiratory obstruction. The external variety gives rise to a variable swelling in the neck below the hyoid bone and medial to the sternomastoid muscle. Unless infection occurs, pain is not noticed. X-ray studies may help to confirm the diagnosis. Internal laryngoceles are not so easy to diagnose. A swelling of the ventricle or of a localized area in the aryepiglottic fold may be seen. Palpation with a probe may reveal a cystic fluctuation character of the air-filled cyst, which will be reduced in size by being emptied of air

or mucoid secretion. It is most frequently confused with a true prolapse of the ventricle due to inflammatory oedema. Treatment is by surgical removal of the cyst if symptoms demand it. An external approach with careful dissection of the cyst back to its origin is the correct procedure. The internal variety is best approached by lateral thyrotomy. Careful study is required to rule out lesions which may be causing obstruction of the ventricular opening into the larynx. The case reported by Wallace is that of a man, aged twenty-eight years, a circus barker. Bilateral laryngoceles were successfully removed, one side at a time, with recovery of normal voice.

#### HYPERTONIA.

If the systolic blood pressures of a large number of adults are determined, it will be seen that they vary from something over 100 millimetres to something over 200 millimetres of mercury. There is no sharp line where one can say with confidence that all figures below this indicate normal blood pressure and all figures over it indicate hypertension. Different investigators take different and more or less arbitrary levels. It is commonly believed that the greater number of cases of hypertension seen clinically are cases of what is called "essential hypertension". This is, according to J. Bauer,<sup>3</sup> not a disease in itself; but if inadequately controlled blood pressure rises too high, then changes appear in the heart and blood vessels and other organs which constitute a disease. W. Evans<sup>4</sup> divides patients with raised blood pressure into two groups, which are sharply differentiated into those with and those without cardio-arterial derangement. To the first class he gives the name hypertonia and to the second arterial hypertension.

Evans stresses the importance of a calm atmosphere and a quiet room, where patient and observer have been together for some twenty minutes before the blood pressure is recorded. He states that several readings should be taken and the lowest accepted as the basal value. The common way of taking one reading without any preparation of the patient leads in many patients to high readings which do not represent true basal readings. Evans examined 400 healthy male recruits entering military service. All the subjects were free from abnormal physical signs. The basal systolic pressure was 170 millimetres of mercury or over in 52 instances, with a mean of 150 millimetres. To determine whether there was any appreciable change with time, the blood pressure was determined in 100 of these recruits after an interval of about ten years. At the first examination 50 had shown normal blood pressure and 50 a slightly raised blood pressure. Evans's upper limits of normality appear to be high: "In that the systolic blood pressure was less than 180 mm. Hg., and the diastolic less than 100 mm. Hg. these readings have been accepted as residing within normal limits." The blood pressures on the second examination showed little change from those at the first examination in those subjects with a systolic blood pressure under 180 millimetres. Of the members of the group whose initial blood pressure was over 180 millimetres, 50 showed little change after ten years except for five who showed considerable increase on the second examination. All these were symptom-free and showed normal electrocardiograms. In groups of older people 40 to 78 years of age, 50 were examined over a period of ten years who had normal electrocardiograms but raised blood pressures and who were classed as having hypertonia. At the same time 50 patients with arterial hypertension were examined. Of the patients with arterial hypertension all but six had died, mostly with some form of cardio-vascular disease, and these six had heart failure or cardiac pain. Of the 50 patients classed as having hypertonia, ten had died with cardiac infarction and seven of the living had cardiac pain.

Evans considers that patients with hypertonia have a good prognosis, but this is not entirely borne out by his

<sup>1</sup> *Cancer*, January-February, 1957.

<sup>2</sup> *Arch. Otolaryng.*, February, 1957.

<sup>3</sup> *Arch. Int. Med.*, 1957, 99: 47 (January).

<sup>4</sup> *Lancet*, 1957, 2: 53 (July 13).

figures. There seems little doubt, however, that the patients with a condition classed as hypertonia can live a more normal life than those with arterial hypertension. The most reliable clinical sign to differentiate hypertonia from arterial hypertension comes to light from an examination of the retinal arterioles. The column of blood in the arteriole may be likened to a pink skein of wool. In arterial hypertension this is changed to a pale string or a white thread. The electrocardiogram shows left ventricular preponderance in arterial hypertension, but this is absent in hypertonia.

### POLIOMYELITIS.

Who should be vaccinated against poliomyelitis? How should poliomyelitis vaccination campaigns be organized? What can be done to prevent poliomyelitis-like diseases caused by other viruses? Is a new poliomyelitis vaccine necessary? These and other important questions were examined by the Expert Committee on Poliomyelitis of the World Health Organization at its meeting last month in Geneva under the chairmanship of Sir Macfarlane Burnet. The Committee's report is to be submitted to the WHO Executive Board at its next session in January, and will be published as soon as possible thereafter if the Board so decides. However, the results of some of its deliberations will be of general interest at the present time.

Poliomyelitis is on the increase throughout the world; and in many countries where the disease was practically unknown until recently, there have been severe epidemics. This change, according to the WHO experts, may be related in part to general improvement in housing and sanitation, and in part to the introduction of new and more virulent strains of poliomyelitis virus. Once epidemic poliomyelitis has appeared in such an area, an increased incidence of the disease tends to persist, except as it may be influenced by artificial immunization—in other words, by vaccination. It is not possible to predict the imminence of epidemic poliomyelitis in new untouched areas with certainty, according to the WHO experts. The first premonitory sign is often, ironically enough, a drop in infant mortality. When the death rate falls below 75 per 1000 live births, it is common to find that poliomyelitis rates begin to increase above three or four per 100,000. Another sign is the appearance of cases of poliomyelitis not only in infants, but in older children as well. More specifically, when 20% or more of the paralytic cases are recorded in children over ten years old, an increase in poliomyelitis can be looked for. In this respect, the WHO experts urged that special efforts be made to improve the reporting of poliomyelitis in all countries. This is particularly important in countries where the disease is becoming a problem and is apparently still restricted to the youngest children. Even though the annual quota of cases is small, an analysis of any changes in age incidence may provide an important warning.

On the question of who should be vaccinated against poliomyelitis, the decision will differ from country to country, because the prevalence and severity of the disease vary greatly in different regions. In some it takes the form of a disease of infants, with low incidence; in others it represents an epidemic disease of children and adults. In the view of the WHO experts, first priority should go to the age group which has suffered important numbers of paralytic cases in the immediate past, and in particular, to the group showing maximal incidence. Exceptions can be made, as in countries where children have a high incidence of the disease, but where young adults, though less frequently hit, show a tendency to suffer from the severe paralytic forms of poliomyelitis. Here it may well seem of greater importance to protect this group than to give complete priority to age groups of children showing a somewhat higher incidence. Another need that may become evident is to protect young adults exposed to special risks—for instance, pregnancy, life abroad in an area of higher incidence of infection than the home

country, or close contact with infectious cases, as in doctors, nurses, hospital and laboratory personnel.

In answer to the question of how the vaccine should be given, the WHO experts saw no reason to depart from the schedule of inoculation suggested by Salk—*viz.*, three injections spaced three to five weeks or more between the first and second, and seven months or more between the second and third respectively.

Should vaccination start in the middle of an epidemic? In some regions, emergency vaccination campaigns have been started during epidemics, but the advantages and disadvantages of such procedures have not yet been fully assessed. When vaccination is undertaken while natural cases of poliomyelitis are currently occurring, it is inevitable that cases of paralysis will appear in vaccinated persons also; most of them will probably represent examples of coincident natural infection, but the possibility must be borne in mind that the inoculation may provoke local paralysis at the place of injection, or be followed by a short period during which natural infection may have a greater paralytic effect. Furthermore, the possibility that a trace of active virus may escape inactivation in the vaccine may have to be considered. In general, the experts concluded that there might be some hesitation in vaccinating for the first time in the face of an intense epidemic in a crowded community, since the virus would have spread already so widely that there would be little hope of producing artificial immunity through vaccine in time to have a useful effect. On the other hand, early and extensive vaccination should be started in the peripheral regions to which the outbreak would be expected to spread over a period of months.

As regards the danger of provoking paralytic poliomyelitis by injections in general—for instance, diphtheria or whooping-cough vaccinations—the WHO experts believe that if a child is already successfully inoculated against poliomyelitis, no accident will occur. Hence, there is no reason for withholding vaccinations or injections in general from protected individuals at any time, including during epidemics of poliomyelitis. On the other hand, the WHO experts have reemphasized their opinion that tonsil and adenoid operations should be prohibited during the so-called "poliomyelitis season", because they are believed to increase the risk of acquiring bulbar poliomyelitis—the most dangerous form of the disease.

Turning to a consideration of diseases resembling poliomyelitis, the experts recognize that there are two groups of viruses which can cause paralytic disease and which may be confused with paralytic poliomyelitis—the arthropod-borne encephalitis viruses and rabies. However, a large number of recently recognized viruses (particularly the Coxsackie and ECHO viruses) may cause epidemics closely resembling non-paralytic poliomyelitis. These latter viruses and the poliomyelitis viruses may all be members of a single family of human enteric viruses. They are not comparable to the enteric bacteria, which are life-long residents of the human intestinal tract. Some of them are responsible for epidemics of herpangina and pleurodynia and for outbreaks of summer diarrhoea of infants and children, as well as for certain hospital epidemics among the newborn, the last-mentioned being particularly lethal. The experts recommend more research concerning these agents and state that there are no specific control measures against them. But they recommended that increased precautions be taken to guard newborn children against infection, and that in epidemics, when possible, laboratory tests be carried out on hospital personnel and on mothers in order to eliminate carriers of the infection.

The need or otherwise for a new vaccine was also discussed. It is pointed out that the current killed vaccine protects most individuals against the paralytic form of poliomyelitis, but does not prevent them from having inapparent infections and spreading the virus around them. It cannot yet be claimed that poliomyelitis has been conquered, the duration of protection is still unknown, and reinforcing injections may be needed at intervals throughout life. Furthermore, the preparation of this vaccine



involves technical difficulties, it is difficult to ensure its potency, it is costly, and it must be administered by injection. A live virus vaccine, given by mouth, would overcome these drawbacks, according to the WHO experts.

Finally, the Expert Committee reviewed the WHO poliomyelitis programme initiated in 1953, and made a number of recommendations concerning its development. They suggested that every country designate a single poliomyelitis laboratory to maintain relations with the six regional laboratories established by WHO and indicated various lines of research to be carried out internationally to increase the store of knowledge concerning the disease and its prevention. Their concluding remarks, while largely obvious, still provide some food for thought. They point out that much work remains to be done and that new facets will be found by research, but "the foundations in the past have been well and truly laid, and we can feel confident now that future changes will be in detail and accent rather than in principle".

### IONIZING RADIATION AS A MEDICAL PROBLEM.

THERE has been an increased interest lately in the effects of ionizing radiation on the human body, and especially in the possibility that such radiation may cause cancer or leukaemia in those irradiated, as well as genetic changes in their germ cells which are likely to be harmful to future generations. These hazards were broadly reviewed some five years ago by Professor Marcus Oliphant.<sup>1</sup> Another useful account of the hazards has been the report of a special committee made to the Medical Research Council, and published last year under the title: "The Hazards to Man of Nuclear and Allied Radiations". This report began by detailing the nature of ionizing radiation and its action on living cells. Then it went on to show that there were four main sources of information on the toxic effects of radiation on man. The first was radiotherapeutic experience; for example, W. M. Court-Brown and J. D. Abbott<sup>2</sup> had implicated X-ray therapy for ankylosing spondylitis as a cause of leukaemia. Secondly, it was pointed out that there had been numerous cases of cancer in medical radiologists exposed to high dosage of X rays and gamma rays, in painters of luminous dials using radioactive elements such as radium and thorium, and in miners of the Schneeberg and Joachimsthal mines, who absorbed the radioactive gas, radon. Thirdly, in the second World War, gamma and neutron radiation from the atomic bombs at Hiroshima and Nagasaki had produced both acute illness and delayed effects such as leukaemia. Fourthly, the effects of radiation could be studied experimentally in animals, and the results could be extended to human problems by analogy.

One of these problems merits closer attention—namely, the effects of X radiation given in the course of treatment of ankylosing spondylitis. W. M. Court-Brown and Richard Doll<sup>3</sup> have been able to study all those patients given radiotherapy for ankylosing spondylitis at some 82 radiotherapy centres in Britain in the years 1935 to 1942, the average dose being about 800 röntgen units. The statistical methods may be taken to be standard and even model for this class of investigation. The patients to be included were defined unambiguously, and an attempt was made to follow them all up to the time of migration or death or until the end of 1954. The diagnoses on their death certificates were obtained. In 22 cases leukaemia was regarded as the leading cause of death. If the patients were regarded as a random sample from the English population at the same ages and sex, then one would expect some 1.44 cases on certain "minimum" assumptions

and some 2.40 on other "maximum" assumptions, about the fate of the untraced patients. However, even on the "maximum" assumptions the excess of the observed over the expected is very large, and we must provisionally accept the hypothesis that the leukaemia is related either to the radiotherapy or to the original disease. Court-Brown and Doll discuss this point and do not find it the likely explanation—one point against it is that the proportion of types of leukaemia in patients treated for spondylitis differs according to the form of treatment. In those treated by X rays, 8% had leukaemia of the lymphatic type and 78% of the myeloid type; whereas in a comparable series of subjects untreated by X rays, 38% had leukaemia of the lymphatic type and 50% of the myeloid type. Further support comes from the consideration that those exposed to higher dosage of radiation suffered relatively more from leukaemia. J. D. Abbott and A. J. Lea<sup>4</sup> have published details of a survey on service personnel, the findings from which are consistent with the above. Recent surveys of leukaemia by L. J. Witts<sup>5</sup> and R. B. Scott<sup>6</sup> have taken the view that the increases in leukaemia death rates noted in many parts of the world including Australia (H. O. Lancaster<sup>7</sup>) are real. So that we are led to consider the possible role of medical radiology in the increases. Clearly there is a need for further research into this hazard from therapeutic radiation. We may also note that A. Stewart *et alii*<sup>8</sup> have found that radiation to the maternal pelvis has resulted in leukaemia in the child.

These findings, together with the possibly serious genetic effects, should lead to a careful balancing of the advantages and disadvantages of the use of X rays. The dosage to the gonads from various types of radiological examination in the Australian population has been reviewed by J. H. Martin<sup>9</sup> making use of some reasonable assumptions. Averaged over the total population, he finds that in males about a third of the dosage comes from examination of the stomach, about a fifth each from the examination of the pelvis and the hip and about a tenth from excretion pyelography. In females about a quarter of the dosage comes from salpingography, one-tenth from pelvimetry, and about a seventh from X-ray examinations of the lumbo-sacral joint and excretion pyelography. He concludes that at present levels probably no danger exists. However, X rays provide such a valuable diagnostic tool that it is almost certain that their use will increase; indeed, there are indications that this is already happening. For this reason Martin recommends discrimination in their use and outlines means of keeping the gonad dose to a minimum. Certainly such unnecessary and frivolous uses as X-ray examinations for fitting shoes should be abolished. The need for repeated X-ray examinations in certain fractures and in osteomyelitis should be carefully considered, and every effort should be made to avoid unnecessary exposure and dosage. At the same time there should be no interference with the use of X rays where a legitimate indication exists, and the value of the mass chest survey seems well established. Finally we may quote from a statement by the United Nations Scientific Committee on the Effects of Atomic Radiation:

Modern medicine has contributed to the control of many diseases and has substantially prolonged the span of life. These results have depended in part on the use of radiation in the detection, diagnosis and treatment of disease. There are, however, few examples of scientific progress that are not attended by some disadvantages, however slight. It is desirable therefore to review objectively the possible present or future consequences of increased irradiation of populations which result from these medical applications of radiation. . . . The Committee also seeks the co-operation of the medical profession to make possible an estimate of the total radiation received by the germinal tissue of the population before and during the child-bearing age.

<sup>1</sup> M. J. AUSTRALIA, 1952, 1: 277 (March 1).

<sup>2</sup> Lancet, 1955, 1: 1283 (June 25).

<sup>3</sup> "Leukemia and Aplastic Anemia in Patients Irradiated for Ankylosing Spondylitis". Medical Research Council of the Privy Council Special Report Series No. 295, by W. M. Court-Brown, O.B.E., M.B., B.Sc., F.F.R., and R. Doll, O.B.E., M.D., F.R.C.P.; 1957. London: Her Majesty's Stationery Office. 9½" x 6", pp. 142, with figures and tables. Price: 10s. 6d. (English).

<sup>4</sup> Lancet, 1956, 2: 1317 (December 29).

<sup>5</sup> Brit. M. J., 1957, 1: 1197 (May 25).

<sup>6</sup> Lancet, 1957, 1: 1053 and 1099 (May 25 and June 1).

<sup>7</sup> M. J. AUSTRALIA, 1953, 2: 855 (December 5).

<sup>8</sup> Lancet, 1956, 2: 447 (September 1).

<sup>9</sup> M. J. AUSTRALIA, 1956, 2: 806 (November 12).

## Abstracts from Medical Literature.

### CORRIGENDUM.

An error has occurred in the surgical abstract entitled "Primary Closure of the Common Bile Duct After Exploration", which appeared in the issue of August 3, 1957, at page 175. The corrected abstract is republished here, as follows.

J. HERRINGTON, R. DAWSON, W. EDWARDS AND L. EDWARDS (*Ann. Surg.*, February, 1957) point out that closure of the common bile duct (primary cholecystectomy) as opposed to T-tube or catheter drainage has been employed infrequently by surgeons in the United States of America. However, over the past ten years the authors have closed the common duct after its exploration in 153 cases. Post-operative morbidity was less than in another 89 cases in which T-tube or catheter drainage was employed after exploration of the common duct. They state also that at present closure of the common duct following exploration is being employed with increasing frequency in the surgical service of the Vanderbilt University.

### OPHTHALMOLOGY.

#### Herpetic Infections of the Outer Eye.

M. LEDERMAN (*Tr. Ophth. Soc. U. Kingdom*, 1956) discusses the treatment of herpetic disease of the outer eye by means of radiotherapy. In dendritic ulceration the purpose of radiotherapy is to promote healing, in disciform keratitis to relieve symptoms and to produce devascularization of the cornea, in post-herpetic pain to relieve the pain, and in superficial punctate keratitis to relieve symptoms. The author outlines the technique of treatment and the complications of radiotherapy. He indicates that radiation is used only when all else has failed.

#### Radioactive Phosphorus in the Diagnosis of Ocular Malignant Disease.

E. B. DUNPHY (*Tr. Ophth. Soc. U. Kingdom*, 1956) reports on his experiences with radioactive phosphorus in the detection of intraocular tumours. Thirty-one cases of choroidal and ciliary body lesions were tested; 21 of these were proved to be malignant melanoma by pathological examination. In 15 of these proven cases the tumours were located in such a position as to be accessible to the application of the Geiger counter. In all the six proven cases in which the tumour was located well posteriorly, tests gave negative results. Ten other eyes were tested, with negative results in nine. In the eye which gave a positive response, the clinical diagnosis was disciform degeneration, and a two-year follow-up has confirmed this impression. Sixteen eyes with iris lesions were tested, a biopsy being performed on 10. In these 10, five lesions proved to be malignant melanoma, three benign leiomyomata, and the other two benign

cysts. Of the five eyes with the malignant melanoma, the test gave positive results in four; it gave a negative result in the other five eyes with benign lesions. In one case of panophthalmitis following perforating injury a positive result was obtained, but the diagnosis was obvious clinically. In two cases of malignant melanoma of the conjunctiva, positive results were obtained. The author concludes that the use of  $P^{32}$  should be regarded as a diagnostic aid and not as a diagnostic test.

#### Unilateral Headache and Oculomotor Paralysis Not Caused by Aneurysm.

H. LINOFF AND D. COGAN (*Arch. Ophth.*, February, 1957) report on the cause of headache and third nerve paralysis due to causes other than aneurysm of the intracranial portion of the carotid artery. A brief review of the literature in support of the diagnostic features of the two symptoms is given. The authors report three cases of diabetes, one of leucemia, one of meningioma, one of glioblastoma, one of unidentified tumour and one of ophthalmoplegic migraine, in all of which unilateral headache and third nerve paralysis were suggestive of aneurysm. They also record from the literature a case of hemorrhage into the pituitary body with similar presenting signs. In differentiating these cases from aneurysm the following criteria are recorded: the diabetic patients were in an older age group; the tumour patients gave X-ray signs of erosion or exostosis of the base of the skull with elevation of the carotid siphon; the leucemic patient showed lymphocytosis in the spinal fluid; the two patients with migraine gave a history of cyclical recurrence of the syndrome with quick and full recovery.

#### "Diamox" in the Treatment of Glaucoma.

P. A. CHANDLER (*Arch. Ophth.*, May, 1957) gives a warning against the use of "Diamox" in angle closure glaucoma, except in the immediate pre-operative period and as a post-operative treatment for residual glaucoma. Its greatest field of usefulness is in secondary glaucoma, and it may be helpful in open-angle glaucoma. If "Diamox" is used with miotics in angle-closure glaucoma, the level tension is no longer a guide to the extent of closure of the angle. "Diamox" may reduce tension, and yet the angle may remain closed and permanent anterior synechia form. The effect of "Diamox" then may be to reduce tension by reducing the formation of aqueous, and at the same time the angle is becoming closed by synechia. Chandler compares the action of "Diamox" in angle-closure glaucoma to that of morphine in abdominal pain, in that they both mask the danger signs.

#### The Choice of Case for Perforating Keratoplasty.

A. G. LEIGH (*Tr. Ophth. Soc. U. Kingdom*, 1955) considers the five-millimetre graft the optimum size for perforating keratoplasty. Indirect sutures cause less disturbance than direct sutures. When a larger graft is required, the author prefers a lamellar keratoplasty as a primary procedure and then the use

of a five-millimetre penetrating graft. Children are unsuitable for perforating grafts, and sixteen years is the minimum age. Full cooperation of the patient is required in the post-operative period. The author divides the general indications for penetrating keratoplasty into optical, tectonic, therapeutic and exploratory. In optical grafting the ideal case is one in which there is a central circumscribed opacity and the surrounding recipient cornea is healthy. When there is irregularity in the thickness of the recipient cornea, a lamellar graft is indicated. The presence of superficial or deep vascularization of a gross nature is a contraindication. The presence of one or two vessels can be disregarded. An anæsthetic cornea is a contraindication to a perforating graft. The author considers that the operation should be performed if the other eye is normal, and it should not be performed if lenses will improve the vision. If the operation is to be performed on an only eye, then other methods should be tried first. In corneal dystrophies the prognosis varies with the type. If a cataract is present, the grafting operation should be performed and the cataract removed 12 months later. If *leucoma adherens* is present, then the author believes that the leucoma should be in the graft and the disk dissected off the iris. Tectonic grafting is usually achieved with the use of a lamellar graft, and at a later date a penetrating grafting procedure is performed. Therapeutic grafting is usually lamellar, occasionally it is penetrating. Exploratory grafting is occasionally justifiable to ascertain the state of the eye behind the cornea.

#### The Radioactive Phosphorus Uptake Test for Malignant Melanoma of the Eye.

A. DONN AND J. MCTIGUE (*Arch. Ophth.*, May, 1957) report on the results of submitting 40 consecutive patients with suspected intraocular malignant melanoma to the  $P^{32}$  uptake test. Thirty-four patients were submitted because malignant melanoma was suspected. Of these, 17 gave a positive result, and histological examination after enucleation revealed malignant melanoma. The remaining 17 gave negative results, but in five the lesion was too far posterior to be reached by the probe. Three patients who had a blind eye with opaque media gave negative results. A positive result in such an eye is confirmatory, but a negative result is valueless. Such eyes should not be submitted for testing. Three patients who had had diathermy to a discrete elevation of the retina were tested, and false-positive results were obtained. Eyes which have been subjected to diathermy should not be submitted for testing with  $P^{32}$ .

#### Heparin in Senile Macular Degeneration.

S. ROME (*Arch. Ophth.*, February, 1957) reports on the use of heparin in senile macular degeneration. In most cases other methods of treatment had been used and failed. The dosage used was 100 milligrammes of the sodium salt of concentrated aqueous heparin given intravenously twice a week. A series of 10 to 20 injections was given, followed by a



two to three weeks' rest interval. Clotting time determinations were omitted, because it was known that the anticoagulant effect of this dose was limited to less than 12 hours. Contraindications are internal ulceration, chronic liver disease and hemorrhagic diathesis. Twenty-three patients were treated, and moderate to marked improvement was obtained in more than half the cases. Since the arteriosclerotic type of senile macular degeneration progresses slowly, it may be advisable to rely on usual methods of treatment until the visual acuity is 20/40. In the disciform type, which progresses rapidly, treatment with heparin should be instituted as soon as the diagnosis is made.

### OTO-RHINO-LARYNGOLOGY.

#### Improvement of Hearing in Otosclerosis by Means of Stapes-Mobilization Operation.

D. MYERS AND B. J. RONIS (*Arch. Otolaryng.*, August, 1956) report on 139 patients on whom 161 operations were performed over a period of eighteen months at the Temple University Medical Centre, Philadelphia. Of these operations, 77 were regarded as successful, and hearing was improved in 65 cases (47%). In 52% the operation was considered as not successful, and in 53% the patient's condition was not improved. The authors state that in some of the first cases results may be discouraging. Blood in the meatus is at times a difficulty to be overcome. Complete mobilization may not be obtained, the crura may be fractured or the incus may be dislocated. Although cadaver practice will give a degree of proficiency, the feel of mobilization of the stapes can be accomplished only on the living patient with otosclerosis. Even among those regarded as ideal, successful cases cannot be predicted, nor can the amount of hearing improvement be predicted pre-operatively. The age of the patient does not predetermine the degree of fixation or the ultimate end result. Patients in the series ranged in age from thirteen to sixty years. Good results are obtainable despite years of deafness. If the pre-operative audiological survey indicates good cochlear nerve reserve by the presence of a wide air-bone gap, a good result can be anticipated. A return to normal hearing is achieved in approximately 18% of the cases. The operation is performed under mild sedation and local anaesthesia. The technique is essentially that of Rosen. The patient is only two days in hospital. Packings are removed on the fifth or sixth post-operative day. In the authors' cases there was no morbidity, no labyrinthitis, no facial paralysis and no persistent drainage. It is therefore safe to give the otosclerotic patient a chance to better his hearing with this procedure.

#### Rosen Stapes Mobilization.

H. P. HOWSE (*Arch. Otolaryng.*, March, 1957) records his results from the Rosen technique of stapes mobilization in 50 consecutive cases during fenestration surgery. He states that mobilization of

the footplate performed simultaneously with fenestration in no way altered the results of the fenestration procedure. Under ideal visual exposure, posterior pressure in the stapes neck resulted in crural fracture in 50% of the cases. Occasionally a transverse fracture of the footplate would occur with simultaneous fracture of the anterior crus. If fractures did occur, a direct approach to the footplate seemed essential if the conduction block due to a fixed footplate was to be eliminated. In three cases direct needle manipulation was attempted, or a pneumatic hammer technique was applied. A total of 800 mobilizations have been performed by the author. Based on the first 400 cases the following conclusions are reached. In ideal cases, with a bone-conduction loss of 10 decibels or less in the three speech frequencies, two-thirds of the patients underwent stapes mobilization and reached 30 decibels or better by air conduction, and the improvement was maintained for a year or more. In cases in which bone conduction was below the 10 decibels level, good results were obtained in lesser numbers in proportion to the greater loss in the speech frequencies. A higher proportion of good results was obtained with growing experience in the procedure. Stapes mobilization is advocated as the surgical approach of choice in the treatment of patients with clinical otosclerosis. If mobilization is not successful, subsequent fenestration may be carried out. The previous attempts at mobilization do not interfere with the subsequent fenestration results. A delay of at least four months is recommended between the procedures. Stapes mobilization is not a simple procedure, but requires painstaking surgical endeavour. Complications can occur, and may include worsening or loss of the hearing from labyrinthine upset.

#### Radical Pansinus Operations for Nasal Polypi.

M. DIMENT AND B. G. OTTOSON (*Arch. Otolaryng.*, May, 1957) have made follow-up studies of 248 patients over periods of two to 17 years after radical pansinus operations for nasal polypi. The same surgeon employed a uniform operative technique in all the cases, and each of the authors carried out the follow-up studies independently. The operative method consists of a transantral radical exenteration of all the nasal sinuses, with the removal of polypi and lining mucosa. All the sinuses except the frontal sinus can be completely cleared by the transantral approach. The frontal duct and parts of the frontal sinus can be reached relatively easily by an intranasal approach. An effort is made in all cases not to injure the concha, especially the middle concha. The operation is completed by making an opening from the antrum to the inferior meatus, and this in turn is lined on its floor by a flap of nasal mucosa turned down from the wall of the inferior meatus. The gingival incision is closed by suture. Tamponade of the posterior ethmoid region and of the maxillary sinus is used only if there has been persistent haemorrhage. The operative procedure is restricted to one side at a time, the second side being treated one month later when necessary.

Of a total of 417 sides operated on, recurrences of polypi were observed in 43, but this was in only 27 patients. In almost all cases recurrence was from the frontal nasal duct or anterior ethmoid region. Of 248 patients operated on, 211 were free from nasal symptoms, and a further 37 considered their condition as improved. Anti-allergic treatment was not given post-operatively, except occasionally for asthma and other associated symptoms.

#### Mobilization of the Stapes Without Incision.

M. C. MYERSEN (*Arch. Otolaryng.*, November, 1956), in a preliminary report, states that in 12 of 18 cases successful results were achieved, after exposure of the incudo-stapedial articulation, by the transmission of strong vibrations through a forked instrument fitted over the stapes. Since sound vibrations are normally transmitted via the ossicular chain from the tympanic membrane to the oval window, it seemed that properly directed vibrations of sufficient power and amplitude might be used to break up the otosclerotic focus at the footplate and mobilize the stapes. Application of these vibrations to the short process of the malleus was tried, and in three cases there was some degree of improvement; in one instance a gain of 30 decibels was produced. After sterilization of the external auditory canal, anaesthesia is induced by subcutaneous infiltration of the depth of the canal, with 1% procaine solution. A specially designed forked instrument is then placed over the short process, so that it lies at right angles to a line drawn through three points within the middle ear cavity. These are the tip of the short process of the incus, the tip of the handle of the malleus, and the lenticular process at the end of the long process of the incus; this line forms the axis of maximum ossicular motion. When the fork is so placed, an assistant brings into contact with its shaft a flattened revolving rod fitted to a dental handpiece. The rod rotates at 9000 revolutions per minute. Since the impact is severe, there is some trauma to the eardrums, which causes some extravasation of blood and slight swelling. The patients all felt momentarily dizzy.

#### Traumatic Cerebro-Spinal Fluid Rhinorrhoea and Otorrhoea.

T. MORLEY AND R. HETHERINGTON (*Surg., Gynec. and Obst.*, January, 1957) review 65 cases of dural tears associated with fractures of the paranasal air sinuses, the middle ear and mastoid air cells. As a result of their review of these patients, the authors consider that, when undoubted evidence exists of traumatic rupture of the dura in these situations, dural repair should be undertaken. They state that this fact applies to dural tears associated with middle ear and mastoid fractures as well as to those associated with fractures of the anterior fossa. The risk attached to an exploratory craniotomy is light, but the chance of fulminating meningitis developing sooner or later in the untreated cases is considerable. Repair of torn dura with fascia lata is effective in preventing meningitis and in curing a cerebro-spinal fluid fistula or pneumocephalus.

## British Medical Association.

### QUEENSLAND BRANCH.

A MEETING of the Queensland Branch of the British Medical Association was held on June 7, 1957, Dr. FELIX ARDEN, the President, in the chair.

#### Medical Affairs Abroad.

DR. HAROLD W. HORN read a paper entitled "Medical Affairs Abroad". He said that in 1956 he had received the dual honour of representing the Federal Council and the Queensland Branch of the British Medical Association in Australia at the Annual Representative Meeting of the British Medical Association in England. It was his purpose to speak briefly about the meeting in general and at somewhat greater length about the confusion which threatened to fall upon the British National Health Service. The Annual Representative Meeting, together with the annual meeting, the scientific sessions and many associated official functions and entertainments, occupied almost two weeks. Indeed, the similarity to an Australasian Medical Congress was striking; but the setting was different from and more attractive than what could be provided in Australia. The venue was Brighton; those who were familiar with it would appreciate his reference to that beautiful seaside city with its abundant hotels, gay promenades, old-time lanes lined with displays of antiques of all descriptions, attractive and extensive gardens and parks and, most important of all, its wonderful and convenient facilities in the form of the Royal Pavilion and the adjoining Dome and Corn Exchange. The first had been reserved for receptions, the ball and the scientific sessions, the second for the actual meetings, and the third for the extensive trade exhibition. Surely few places could have provided the atmosphere and convenience of that exotic Regency block, where hundreds of doctors assembled daily, moving readily from meeting to meeting or function in a matter of minutes. Nor could one seek more generous entertainment than that provided by the local Sussex division of the British Medical Association for members and their wives. Overseas representatives and guests from all parts of the British Commonwealth and beyond were numerous, and added considerably to the already mighty conclave of those from the British divisions. The contingent from Australia included members from all the States. Dr. Horn believed that it was the strongest representation yet seen at any of those meetings. It might be expected that the conduct of such a meeting would be difficult; but under the confident and breezy chairmanship of Dr. Ian Grant, some 350 items on the agenda had been dealt with by debate and resolution in a manner deserving high commendation. Dr. Horn said that it might interest those present to be told that the carcinogenic function of the cigarette received wide Press publicity as the result of a resolution confirmed daily, which banned smoking for the duration of the meeting. The atmosphere certainly remained sweeter and brains clearer, and he did not think that tempers suffered. Many facets of medical practice came under discussion; but without doubt the National Health Service should be given prime importance. He proposed to devote the rest of his address to it. He reminded those present that all doctors in the service were paid by the Government, some by full-time salary, some on a part-time sessional basis (those comprised most consultants and specialists), and the remainder, the great body of general practitioners, by an annual capitation fee.

As Dr. Elvatt, in pursuance of the resolution of the Labour convention, had already announced his party's policy to introduce a scheme in Australia based on similar principles, Dr. Horn felt that it was incumbent upon all doctors to know something of the British National Health Service and its effect on those who served it. He had spoken to some doctors, almost exclusively specialists and consultants, who maintained that the plan was a good one, in that the sick were free to consult their doctor at any time without the burden of financial worry. They said that under the present circumstances of straitened national economy the provision of a free service was logical and right, and they would not choose to return to a system in which financial responsibility, even partial, must be accepted by the patient. Those men spoke apparently with complete sincerity; but he saw two very powerful facts which weakened their protestation. First, the state of the national economy and that of the individual were often far apart. Secondly, the present-day fees charged in private practice by some of them were staggering, at least from the Australian point of view. It would appear, therefore, that their sympathy was related, in part

at least, to the favourable income which top-grade specialists and consultants were known to receive. In sharp contrast to that attitude one heard the loud rumblings of discontent which came from the body of the meeting. Those men, young and not so young, general practitioners and hospital medical officers, had experienced the bitter side of practice. It was clear that they knew what they were talking about as they ventilated, very concisely, the many shortcomings of the scheme as it affected them. Dr. Horn said that he would leave most of the complaints by the wayside, where, he did not doubt, they would continue to flourish, at least for a time. He would touch upon a few of them.

Most National Health Service doctors spoke bitterly of the burden of certification which, to an apparently unnecessary degree, filled their days and made their work predominantly clerical instead of clinical. Far from finding some alleviation as the years went by, they found that demands from their patients, which they could not refuse, were forever increasing. Demand had come to be the exclusive prerogative of the patient, and so they spoke with emphasis of the injustice of a scheme in which a patient had many "rights" and the doctor only "duties". They resented the fact that for a dereliction of duty or other misdemeanour they incurred the risk of being three times punished—by the Medical Services Tribunal, by the Court and by the General Medical Council—all for the same offence. Penalties described as "savage" had many times been inflicted for mere breaches of the regulations, and perhaps those present could agree that a £10 fine was rather savage upon a doctor who, under great provocation, told his patient to "go to hell". Those were examples of the pin-pricks in a controlled service; but they did add up.

By doctors in the Colonial Medical Service, a name now defunct because it had been swallowed up in Her Majesty's Overseas Civil Service, a very real complaint was voiced. A man might enter that service in his late twenties, but a few years later, owing to the country of his choice becoming independent, he might suddenly find himself barred from practice and in search of a job. Should he return to Britain, there was little or no hope of his finding a place in the National Health Service. To quote Dr. Grant, Chairman of the Representative Body: "The chance of getting employment in this country at 35, still less at 45, is very slight. The average young man found when he qualified that he must not lose his place in the queue. If he went away for five or six years, no matter how capable he was, his chances of getting back into the queue were very slender." Once again, it was the effect of control, for a man might not commence practice where he wished and have National Health Service patients without the consent of the "powers that be". Conversely, if he wished to practise in the service, he might be directed far away. As one doctor had said to Dr. Horn: "We have to accept the policy of be put and stay put!"

Complaints such as those were widespread, but not nearly so universal as the much more vital outcry over remuneration. General practitioners and hospital medical officers had been dissatisfied with their incomes from the very inception of the scheme in 1948. Those present would remember that more than half the profession was at that time opposed to it until the recommendations of the Spens Committee were accepted by the Government. That acceptance turned the tide of resistance, for economic protection in the future seemed to be assured. That their judgement was erroneous had been adequately proved. As the value of money depreciated with passing years, many of them had found it impossible to pursue a way of life proper to their status and to educate their children as they would wish—or as they themselves had been educated. Dr. Horn said that he would quote one or two irrefutable examples. (i) A highly qualified registrar in a teaching hospital which he (Dr. Horn) visited received a salary of £960 per annum nine years after graduation. His term would soon be up, and there was no vacancy for him in a consultant capacity. (ii) A father and son in a partnership general practice in an outlying London district netted £1900, before taxation, in the previous year. The details of an interview with the principal of that practice were broadcast over television, and the commentator stated that, during his presence, the doctor's wife (who was, of course, not paid by the National Health Service) answered seven calls from patients. It was not therefore a particularly poor practice. How general those extreme cases were Dr. Horn could not say; but there was abundant evidence that the British National Health Service, which lavishly disbursed annually some hundreds of millions of pounds, had nevertheless brought economic distress and disillusionment to many of its doctors, upon whose willingness to serve the public according to the ideals of their profession its very existence depended.



Dr. Horn then said it was at that point that they must return to the Spens recommendations, which, as he had told them, had been agreed to by the Government in 1948. The remuneration at that time was based on the value of the pound in 1939, and the committee recommended that it should vary from time to time *passu* with changes in the value of money. The primary reason for the collapsing economic status of the profession was the failure of the Government to implement its undertaking on the lines of Spens, and it was the hospital medical officers and general practitioners upon whom the greatest blow had fallen. While certain small adjustments in pay had been made in 1952, the percentage increase in doctors' incomes since 1951 bore but poor comparison with the 40% increase in incomes generally. In fact, the 1952 rise was only about 15% to 16%. Accordingly, early in 1956, the British Medical Association, through the Negotiating Committee, had sent to the Minister for Health and to the Secretary of State for Scotland a memorandum claiming an adjustment of fees in accordance with the Spens recommendation, and, having ascertained that their real incomes had decreased by 24% since 1951 in comparison with wages and salaries in general in the community, they requested that the incomes of general practitioners and hospital medical staff be increased by that amount. A curt refusal from the Minister was published in the supplement to the *British Medical Journal* of July 2, 1956. The attitude of the Minister was expressed in two important statements in the publication: (i) He did not accept the premises on which the claim was based. (ii) Remuneration of the medical profession, like that of others, must be determined only in the light of all relevant circumstances. Those circumstances, of course, included the state of the national economy—in other words, the ability of the Government to pay. The agreement on the Spens recommendation was therefore thrown overboard; that showed how easy it was for any Government, of whatever political colour, to abrogate an agreement entered into by a predecessor.

The immediate reaction of the profession was to organize, and after meetings of the divisions, a general walk-out from the National Health Service was mooted. However, a further approach was made by the Negotiating Committee, which was rewarded on November 22, 1956, by the same curt rejection of the claim, and by the Government's denial of any contractual obligation between it and the profession. Undaunted, the Committee persevered, and a conference with the Minister was arranged, in the hope of convincing him by personal contact that justice was not being done. That eventuated in January, and as a new Minister for Health, Mr. Vosper, had then come into the picture, it was continued with him on February 20, 1957. Both conferences were a fiasco. The Minister was in a dictatorial mood, and not only did he refuse to discuss the profession's arguments, but he also confronted the delegation with the information that the Government proposed to set up a Royal Commission for the purpose of investigating doctors' incomes in the National Health Service. He did not know its exact terms of reference, but in answer to a question, he stated that while the profession might put its case before the Commission, the probable machinery for settling the dispute would be negotiation between it and the Ministry, as if that was not exactly what was then taking place. He also said that the recommendation of the Commission would not be binding on the Government. The proposal therefore seemed to have no virtue, and it could not be expected to bring any hope to the harassed profession.

Dr. Horn further said that the British Medical Association had no doubt that a former Government's acceptance of the Spens report constituted a contract, and he again stressed that it was on the Spens report that the profession pinned their faith when they finally agreed to accept employment in the service in 1948. In it they saw a safeguard to their future security, and they believed that it was a whip which would safeguard them from the politician. In short, without the Government's acceptance of it, they would not have entered the service. Now it was to be suddenly jettisoned in favour of a Royal Commission, which they did not want, and whose findings the Government were not even bound to accept. It was no wonder that the profession rose in anger, which was not appeased by the Minister's only concession—viz., that he would give immediate instructions to his department to negotiate a settlement for junior hospital staff up to senior registrar.

The Council of the British Medical Association was now satisfied that the Government's breach of faith demanded the strongest action, and resolved that "unless the Government agrees to an immediate and satisfactory settlement of the profession's claim, or to arbitration, general practitioners throughout the country will be advised to resign

from the service". The Joint Consultants' Committee endorsed that resolution, and resolved that it would advise its constituents to refuse to permit hospital and specialized services to be used in any way as a substitute for family doctor services. The General Medical Services Committee had already taken steps to call a meeting of Local Medical Committees in April, to which it would recommend the implementation of the Council's resolution. So the stage was set for an unprecedented upheaval in the medical services of Great Britain. In spite of unfavourable Press publicity, the profession remained firm in its decision that private practice would be resumed, and already letters had appeared in the journals suggesting methods for financing the medical needs of the far from opulent middle class by some form of insurance. Dr. Horn said that the Press hostility which he had just mentioned was very depressing; but there was no doubt that it was in conformity with the ideology of the supporters of the Welfare State. The contention of the profession that the capitation fee should maintain its relation to the level of wages generally was summarily rejected, on the ground that in a community in which so much had been done in the way of "levelling up", it was absurd for any professional man to expect his income to rise in the same proportion as that of the worker. The columnists asserted that if that was so, the plight of the worker would be what it had been in the bad old days. That assertion was quite unacceptable to a profession in which the oft-quoted "backbone", the general practitioner, had never enjoyed a place in the high income class; he, because of the capitation system, was doomed to end his career with the same income as when he started. No one could foretell what the future would bring to British doctors; but whatever might befall, Australian doctors should wish them well. They had learned recently from the Press that the Government had offered a remuneration increase of 10%, which the profession had rejected, deciding at the same time that failing satisfactory settlement, general practitioners would withdraw from the service on October 1, 1957.

Dr. Horn expressed the hope that a better service would emerge, for the British National Health Service, seen through Australian eyes, was not a good one. It was true that it had placed all medical services within the reach of every member of the community without immediate cost to the patient; but its colossal overall cost was an unwarranted burden on the national economy. That fact alone must be regarded as a cogent reason for the Government's refusal to consider the claim in question. It was also true that the service had raised the standard of many hospitals which were hitherto backward from financial and other reasons, and that into those hospitals it had brought specialist and consultant services of very high quality. There was, however, a debit side, for what it had done to the general practitioner was well known, by hearsay, to most of those present. His economic status, as had been shown, was often inferior to that of many an unskilled worker, and had a consequent effect on his social status. He was compelled to accept large numbers on his list in his endeavour to secure an adequate income, and in consequence he was overworked. His exclusion from the specialist staffed hospitals had been his greatest blow, and Dr. Horn had been assured that most general practitioners never performed a major operation and many never treated a serious illness. The degenerative process was therefore far advanced, and it was perhaps the saddest effect of a plan which had been conceived by a government without advice from the British Medical Association. Since he had also lost the right to practise where he chose, to prescribe as his knowledge dictated and to own the practice he had established, his plight was indeed a sorry one. One was therefore not surprised that the political chicanery which had denied him the right to economic advancement with the rest of the community had stimulated him at once to anger and protest. Dr. Horn said that he was not disposed to discuss the moral influence of a "something for nothing" scheme on the British public, but he could not refrain from saying that he had seen letters in Australia, in the Press and elsewhere, from British migrants who considered it iniquitous that they had to pay anything at all for their medical care. The free service, which they used to the full as their right in Britain, had contributed very largely to the destruction of their former wholesome pride in independence.

Doctors in Australia had twice escaped from the threats of two governments of different political colours, and they should not forget the good fortune which had finally given them, as Federal Minister for Health, a member of their own profession. To him they owed gratitude for the introduction of a service which was based on their own policy, and which had brought benefit to a large section of the community and to the profession itself. Whatever its imper-

fections, they were all aware of its many virtues. Its interference with their freedom had been minimal. At a meeting of the World Medical Association in Rome in 1952 it had been acclaimed, with that of Sweden, as "the only National Health Service in the world worthy of the name". It had with reason been said that only politicians and doctors could destroy it. Dr. Horn urged that doctors should not, by greed, by disregard of their ethical code or by any other means, become an instrument for its destruction.

Dr. Horn said, in conclusion, that in the story he had told one could not fail to note the persistent apathy of successive Ministers to the threatened collapse of the British National Health Service. At all times they assumed the role of master and resolutely refused to negotiate, knowing well what chaos could result. Their attitude had served only to engender a suspicion, which had been further supported by the Prime Minister's failure to apply to doctors the philosophy which he had expressed in March, 1957, when confronted with the disastrous strike that paralysed British shipping. Properly and sincerely, he had said: "Surely this is a time when we should accept some form of arbitration rather than have recourse to self-destructive struggles. In the long run and for the common good, an umpire is better than a duel." Example, Dr. Horn submitted, was better than precept. Dr. Horn then added that subsequent to the preparation of his address, the Royal Commission had been announced and its terms of reference published. The most important of them was to make recommendations concerning the payment of doctors in the National Health Service, having regard to the incomes earned in other comparable professions. The agreement on the Spens report was therefore finally abrogated and the profession's anger finally vindicated. Those present would probably agree with the decision of Council that cooperation with the Royal Commission would be refused.

## Out of the Past.

*In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.*

### THE MEDICAL BOARD OF NEW SOUTH WALES.

[From *The Australasian Medical Gazette*, May, 1884.]

At the time appointed for the May meeting of this Board twelve gentlemen were in attendance for the purpose of registering their diplomas, some of whom were anxious to leave for the field of their future labours in various distant parts of the Colony. In this they have been disappointed, there being, as is frequently the case, no quorum of the Medical Board present, only two members having put in an appearance. We did hope that after the protestations of some of the enthusiastic reformers recently appointed, we should cease to have to complain of this serious grievance. May we suggest that the gentlemen who form this Board will either fulfil the duties they have undertaken or resign.

## Correspondence.

### INTERSTATE REGISTRATION.

SIR: Whilst on a recent visit to Victoria and South Australia I was asked to oblige a hypertensive fellow-traveller by renewing a prescription for "O.C.P." tablets. Knowing that these were a proprietary preparation which contained phenobarbitone, I wrote the prescription out in the careful manner which one uses for a dangerous drug. I also verified the hypertension. To my amazement the patient returned some six hours later from a visit to a Melbourne chemist with the information that the prescription had been rejected because my name was not on the Victorian Register of Medical Practitioners.

Some few days later in Adelaide I presented the prescription myself to a pharmacist and informed him of what

had happened in Victoria. He told me that he also would have to reject the prescription unless I could have it countersigned by a colleague who was registered in South Australia. Subsequently I inquired from a ship's surgeon as to whether his registration was valid in all Australian ports. I was informed that his prescriptions for dangerous drugs were only recognized in the State in which his name appeared on the Medical Register.

This seems to be a very parochial state of affairs unworthy of a progressive country, although I recognize that great care is necessary in handling certain drugs. At the same time I think it could be challenged under Section 92 of the Australian Constitution, which states clearly that there shall be no hindrance to trade between the States. On interstate vessels it could even hinder the work of the ship's surgeon or affect the ship's medical kit. It would seem that some further reciprocity between the various State Registries is warranted.

Yours, etc.,

THOMAS HAMILTON.

17 Bolton Street,  
Newcastle,  
New South Wales.  
August 8, 1957.

### ASIAN INFLUENZA.

SIR: I should like, while the epidemic of "Asian flu" is at its height in Melbourne's inner suburbs, to make one or two comments on the management of this outbreak by the responsible public authorities.

Advanced warning of the impending epidemic was received, simultaneously I would assume, by the public and by the health authorities some months ago. Hard on the heels of the announcement of the outbreak in Asia came the news that Australian scientists were working on the creation of a vaccine to protect the public from this infection. News of the progress of this work was printed frequently in the daily Press and featured prominently. The inevitable effect of this emphasis on the "dramatic race against time" was to arouse a widespread fear amongst the lay public of the severity of the disease, a feeling of distrust of those statements published declaring the influenza to be of a "mild" or "standard" type, and a sense that safety was only to be gained by the receipt of a dose of vaccine in good time.

I cannot doubt that at the time this publicity was appearing, the Serum Laboratory executive and the Health Departments were well aware that there was no possibility of inoculating a substantial proportion of the Australian public.

The outbreak of "Asian flu" in Melbourne was heralded in the Press with the report of an autopsy on a young woman who had contracted the disease and died. The folly of allowing this mischance to be made known to the public as the first indication of the outbreak is too obvious to require emphasis.

Since that time, eleven days ago, there appears to have been a policy of "playing down" the influenza epidemic—exemplified by the current solemn deliberations on the fate of the *Stratheden*—a policy which has reacted in exactly the opposite way to that I imagine was intended. When a patient reads that there have been 2000 or 4000 (the latest figure) cases of influenza in the whole of Melbourne, he experiences a sense of isolation when he learns that he has contracted the disease. Were he aware that there were some 100,000 fellow-sufferers in the same city (as I am sure there are at present), he would be fortified by a sense of community.

When he reads that all 4000 cases were mild, he is stricken with terror when he sees the thermometer reading 105° F. The fact is, of course, that to a public conditioned to dignify every trivial coryza by the name of "flu", there is no such thing as a mild influenza. Clinically, the disease is only diagnosable by its severity and its ferocity of onset.

The present result of this mishandling of the public relations of the Asian virus is that those who contract the disease are demoralized, while those who are awaiting its attack besiege their doctors with demands for vaccine.

With regard to the distribution of the vaccine, I feel that the priorities which have been allotted call for the severest censure. There can be no two opinions that protection should be given to those who stand in the greatest danger from the disease—the bronchitics with emphysema, the congestive cardiac failures, the bronchiectatics, the very old



and the extremely young. Nor can it be gainsaid that when they have been protected, those whose task it will be to minister to the hundreds of thousands of expected cases—the general practitioners, the visiting nurses and the mothers of large families—should be next on the list. It was only after these two groups, on whom the main burden of the epidemic was certain to fall, had been protected, that vaccine should have been made available for the staff of public hospitals (and why not private hospitals also?) and for public utilities, large commercial concerns and exposed waterside workers.

The rationale of accepting the armed forces in any list of priorities escapes me.

The cynicism with which the Minister's letter dismisses the needs of the most vulnerable section of the community—those whose respiratory systems are already weakened by disease—makes depressing reading. The assurance that their medical attendants will obtain vaccine for them direct from the Commonwealth Serum Laboratories or their usual suppliers must be seen in conjunction with the fact that now, with the epidemic at its peak, it is not within my knowledge that a single dose of vaccine has been made available for the use of private practitioners, either for themselves or for their most endangered patients.

Yours, etc.,

297 Church Street,  
Richmond, E.I.,  
Victoria.  
July 22, 1957.

D. WOLFERS.

#### SOME THOUGHTS ON THE CHEMOTHERAPY OF TUBERCULOSIS.

SIR: I wish to thank Dr. Ford for his letter published in the journal of July 13, 1957.

I am interested to hear of his experiences with pyrazinamide; but, as he states, it is in short supply, and my personal experience has been extremely limited. I agree that it has great potential and have definitely modified the opinion stated in my original paper, which it must be remembered was prepared nearly twelve months ago. However, I still maintain that it is a toxic drug, which must be used with care.

I find the sputum-positive, drug-sensitive patient most interesting, and agree with Dr. Ford that increasing the dose of the appropriate agent is indicated in this condition.

We would, I am sure, all like to feel that Professor Crofton's results are as easy to achieve as he and Dr. Brian Marks state. Crofton is, of course, an extreme enthusiast. I spent some time with him during a recent overseas trip and found the experience most stimulating. A meticulous analysis of each patient is, as Dr. Ford states, partly responsible for their apparent "success"; but are the bacilli "dead" or "dormant", as Dr. Ford asks?

I agree that failure to take chemotherapy on the part of domiciliary patients is a real problem, but with Dr. Ford doubt that such a state of affairs could exist in an institution, particularly a well-run one.

Yours, etc.,

P. R. BULL,  
Medical Officer in Charge,  
Thoracic Unit.  
Austin Hospital,  
Heidelberg,  
Victoria.  
July 24, 1957.

#### DOCTOR WANTED FOR FLYING MEDICAL SERVICE.

SIR: The Bush Church Aid Society of the Church of England, whose office address is Church House, St. Andrew's Cathedral, George Street, Sydney, has built up the only Flying Medical Service entirely maintained by the Church. It is located west of Spencer's Gulf in South Australia and consists of base hospitals at Ceduna and Wudinna with out-hospitals at Penong, Cook and Tarcoola, the last two being on the Transcontinental Railway Line. At Ceduna the Society operates its own short-wave radio station, to which are connected seventy outposts. There are two aeroplanes at Ceduna, and one also operates from the Wudinna base.

Each of the hospitals is managed by the Society, and the whole staff of nurses, doctors, radio operators and pilots are employees of this Society.

We are in need of the services of a medical practitioner who will undertake this work in the spirit of Christian service. The work consists of normal practice routine, radio consultations, outback clinics and emergency flying. The salary at the moment is £1250 per annum with residence, holiday travel expenses and motor-car. The necessary expenses of running the practice are borne by the Society. I should be glad to hear from any of your readers who would be interested in this type of work.

Yours, etc.,

TOM JONES,

Organizing Missioner.

The Bush Church Aid Society for Australia and Tasmania,  
Diocesan Church House,  
George Street,  
Sydney.  
August 9, 1957.

#### CONTROL OF BARBITURATES.

SIR: Under an arrangement with the Department of Public Health, action is being taken to transfer the control of barbituric acid and its derivatives from the *Police Offences (Amendment) Act* to the *Poisons Act* as from August 30, 1957.

The relevant Proclamation under the *Police Offences (Amendment) Act* (copy attached) is being gazetted on Friday, August 9, 1957. The Department of Public Health has advised that the drugs in question are to be included in Schedule Three (Restricted Drugs) of the *Poisons Act* as from the date on which control under the *Police Offences (Amendment) Act* ceases, i.e., August 30, 1957.

It would be appreciated if the matter could be publicized in your journal.

Yours, etc.,

C. J. BUTTSWORTH,

Chief Secretary's Department,  
Sydney,  
August 9, 1957.

Under Secretary.

#### POLICE OFFENCES (AMENDMENT) ACT, 1908, AS AMENDED.—PROCLAMATION.

(L.S.) J. NORTHCOTT, Governor.

I, SIR JOHN NORTHCOTT, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Knight Commander of the Royal Victorian Order, Companion of the Most Honourable Order of the Bath, Lieutenant-General on the Retired List of the Australian Military Forces, Governor of the State of New South Wales and its Dependencies in the Commonwealth of Australia, with the advice of the Executive Council, do, by this my Proclamation, repeal that part of the Proclamation published in Government Gazette No. 65 of the 18th June, 1948, whereby Part VI of the *Police Offences (Amendment) Act, 1908*, as amended, was applied to:

Barbituric acid and its derivatives, and any preparation, admixture, extract or other substance, containing not less than one-fifth per centum of barbituric acid or its derivatives.

I hereby order that this, my Proclamation, shall take effect on and from Friday, 30th August, 1957.

Signed and sealed at Sydney, this thirty-first day of July, 1957.

By His Excellency's Command,

C. A. KELLY.

GOD SAVE THE QUEEN!

#### PRIVATE CONSULTING ROOMS AT PUBLIC HOSPITALS.

SIR: In a leading article entitled "Private Consulting Rooms at Public Hospitals" in *THE MEDICAL JOURNAL OF AUSTRALIA* of July 20, 1957, reference was made to the recent official opening of a building of this type at Royal Prince Alfred Hospital.

Such schemes undoubtedly have many advantages. However, due regard should be given in such plans for a full private ancillary service for those patients who are able to afford a fee.

Such ancillary service has not been provided in this scheme, and use is made of public hospital departments for special investigations. It is wrong in principle that out-patients who can afford a fee should be referred to public hospitals when such services are available from private practitioners.

This matter was referred to in a recent circular published by the New South Wales Branch of the British Medical Association on October 15, 1956, and again on November 19, 1956.

For these reasons, the College of Radiologists of Australasia feels that the accepted principles of the private practice of medicine should be maintained, and space should be planned in any such scheme for private ancillary services if such are not already available in the area.

On behalf of the Executive Committee of the College of Radiologists of Australasia,

Yours, etc.,

E. W. CASEY,

President.

135 Macquarie Street,  
Sydney,  
August 12, 1957.

## Obituary.

### ROBERT LESLIE FORSYTH.

We are indebted to Dr. C. I. McLaren for the following appreciation of the late Dr. Robert Leslie Forsyth.

R. L. Forsyth died at his residence, Surrey Hills, Melbourne, on April 26, 1957. He was born in Dunedin, New Zealand, on December 31, 1883, the youngest son of a family of six; his father was an importer. At an early age he came with the family to settle in Melbourne. Forsyth attended the Malvern Grammar School, from which he passed out as *dux* in 1899, and also as school captain of football and athletics. Thus began a distinguished career as a student and a continuing competence in sport—especially running, lacrosse and tennis. Forsyth was also gifted with more than ordinary neatness of hand, as evidenced by some very creditable examples of joiner's craftsmanship executed in days before professional calls filled all his time.

Forsyth began his medical course at the University of Melbourne in the opening years of the century now more than half run its course. How revolutionary the changes he witnessed and learned to live with, both in physical science and in medical practice! Then the first whispers that the Newtonian system was not final, full and infallible had scarcely been breathed, and X rays were not yet in use in Australia. Throughout his course Forsyth proved himself a first-class student, with the ability to get at the heart of a subject. His keenest interest of all was probably in physiology, where he came under the influence and attracted the interest and attention of a master of unique physiological insight, the late Sir Charles Martin, F.R.S., who, after his professorial work in Melbourne, became director of the Lister Institute in London.

In 1904 Forsyth graduated M.B., B.S., and in 1907 M.D. He was resident at the Melbourne Hospital for one year, and passed from there to become resident and later senior superintending resident at the Children's Hospital. So began training for a forty years' service at that hospital, till at the end he was senior honorary physician. It was not only a long but a fruitful service in various departments of the hospital's work, as a member of the hospital professional team, as a penetrating clinician, as a wise and stimulating teacher, and as a constructive research worker. At the recent jubilee meetings of the Paediatric Society of Victoria, Dr. Boyd Graham, in his inaugural historical survey, mentioned among the "foot-prints" still to be discovered on the "parade-ground" of the hospital's history those of R. L. Forsyth. Work at the hospital meant close association with Melbourne's great clinician, the late Sir Richard Stawell, whose mind and methods deeply influenced Forsyth, and who, in turn, thought much of the younger man. It was on Stawell's recommendation that Forsyth undertook, while clinical assistant to out-patients, a three

years' clinical and bacteriological investigation (financed by the trustees of the late Edward Wilson) of infantile diarrhoea. The results of this investigation proved significant both clinically and bacteriologically. Forsyth maintained his bacteriological interest, and while doing post-graduate work overseas made contact in the United States of America with Flexner and Noguchi. Though modest about his work, Forsyth was not to be overborne by authority, however exalted. The story is told of a round he made, as a rather junior graduate, at the Great Ormond Street Children's Hospital. The great Robert Hutchison was in charge, and delivered a dictum that children of less than six months could not digest starch. Forsyth made bold to contradict the great man, and supported his claim from his own first-hand experiment and observation. History does not relate the great man's reaction—probably satisfaction at meeting a junior prepared himself to go straight to the final authority—Nature.



Outstanding among Forsyth's characteristics, both as a man and as a scientific clinician, was his sheer honesty. He could not tolerate pretence or the smallest falsification of clinical or other presentation. It would be understatement to say that under such circumstances he was neither suave nor urbane. Had Diogenes lived in modern Melbourne instead of ancient Athens, he would not have needed to go around our city with a lantern, in the daytime, looking for an honest man. Any of Forsyth's friends would have given the old cynic the address in Surrey Hills where he could find such a one. Forsyth allowed himself the luxury of the expression of a mordant humour. The writer still remembers the perhaps well called for, but quite Utopian, question addressed to himself on a certain occasion by Forsyth: "Wouldn't you like to change yourself for somebody else?" His estimate of humanity's ability wisely to manage its own affairs was not heightened by continuing reminders, with pain and disability, of a war wound sustained in France during the World War of 1914 to 1918.

Dr. Forsyth married in 1915 Miss Edith Thomas, a sister at the Alfred Hospital. There were four children by the marriage. The death of his wife in 1941 was a sore blow to Dr. Forsyth, and the war soon brought another tragedy into the home when Tom, the second son, was killed in action near Timor. He was an observer-navigator of a



Mitchell bomber. The surviving children (the eldest Dr. Leigh Forsyth) follow their father in worthy service of the community.

In 1943 Dr. Forsyth remarried. His second wife, who survives him, had been Sister A. Feely. Her companionship over the years, as well as her care in his last illness, was strength and comfort to him.

Though eminently qualified to practise as a consulting paediatrician in the city, Forsyth elected the work of a general practitioner in a suburb. He was greatly trusted and greatly esteemed, and many there are to "rise up and call him blessed". The member of a family whose lifelong family physician Forsyth had been paid this tribute: "Dr Forsyth's opinion always proved right in the end." Another summed him up with this: "He had a heart of gold." But at the funeral service there was tribute greater than any words could express. It was the manifest sense, in the company that gathered, of sorrow in the loss of a true friend, a wise physician and a good man.

A sustained reserve characterized this man. He was never glib, but he thought much on the deeper issues of life, and always his thought was exalted by reverence and deepened by faith.

## Post-Graduate Work.

### THE MELBOURNE MEDICAL POST-GRADUATE COMMITTEE.

#### PROGRAMME FOR SEPTEMBER, 1957.

##### Overseas Lecturer.

DR. DANIEL G. MORTON, Professor of Obstetrics and Gynaecology, U.C.L.A. Medical Centre, Los Angeles, will visit Melbourne during the first week in September, and will lecture on "Hormone Therapy" for the Melbourne Medical Post-Graduate Committee at 8.15 p.m. at the Royal College

of Obstetricians and Gynaecologists Hall, 8 LaTrobe Street, Melbourne, on Thursday, September 5. The fee for this lecture is 15s., but those who have paid an annual subscription to the Committee are invited to attend without charge.

##### Country Courses.

**Mildura.**—A course will be held on September 21 and 22, 1957, at the Mildura Base Hospital. The programme is as follows: Saturday, September 21: 2.30 p.m., "The Management of Hypertension", Professor R. R. Lovell; 4 p.m., "Peripheral Vascular Disease", Mr. S. F. Reid. Sunday, September 22: 9.30 a.m., "Obstructed Labour", Dr. J. Smibert; 11 a.m., a short talk on the work of the Department of Medicine, University of Melbourne, by Professor R. R. Lovell. Dr. J. H. Scobie, Mildura, is the local secretary for this course.

**Warrnambool.**—A course will be held on September 21, 1957, at the Base Hospital, Warrnambool, as follows: 3.30 p.m., "Shoulder and Arm Pain", Mr. W. G. Dolg; 5 p.m., a short talk on research by Professor S. Sunderland, followed by a lecture on "Dermatology in General Practice" by Dr. R. Kelly. Dr. R. R. Sobey, 6 Spence Street, Warrnambool, is the local secretary for this course.

**Swan Hill.**—A course will be held on September 23, 1957, at the Swan Hill High School, as follows: 2 p.m., "Management of Diabetes", Dr. Bryan Hudson; 3.15 p.m., "Management of Chronic Leg Ulceration", Professor M. Ewing; 4.45 p.m., "Vaginal Discharge", Dr. Bruce Anderson; 5.45 p.m., a short talk on original or academic work by Dr. Bryan Hudson. Dr. W. Weaver, Swan Hill, is the local secretary.

**Fees for Country Courses.**—Fees for country courses are at the rate of 15s. per lecture, but those who have paid an annual subscription to the Committee are invited to attend without further charge.

##### Annual All-Day Meeting for General Practitioners.

An annual all-day meeting for general practitioners will be conducted by the Victorian State Committee of the Royal College of Obstetricians and Gynaecologists on Sunday, September 29, 1957. The morning sessions, under the chairmanship of F. J. Hayden, will be as follows: "The Difficult

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED AUGUST 3, 1957.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism .. ..	2	1(1)	4(2)	2(2)	..	..	1	..	10
Anchylitis .. ..	..	..	10	..	..	..	..	..	10
Anchylomyelitis .. ..	..	..	..	..	..	..	..	..	..
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharzias .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	1(1)	..	1(1)	..	..	..	..	2
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	..	..	..	..	..	..	..	..
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) .. ..	6(5)	12(11)	..	..	..	..	..	2	20
Diphtheria .. ..	1(1)	4(4)	..	..	3(2)	..	..	..	3
Dysentery (Bacillary) .. ..	..	..	..	3	..	..	..	..	3
Encephalitis .. ..	..	1(1)	..	..	..	..	..	..	1
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	..	..	..	..	..	..	..	..
Infective Hepatitis .. ..	24(15)	29(8)	..	11(5)	6(2)	1	..	..	71
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	..	..	..	..	..
Leptospirosis .. ..	..	..	7	..	..	..	..	..	7
Malaria .. ..	..	..	..	..	..	..	1	..	1
Meningococcal Infection .. ..	2(2)	..	..	..	..	..	..	..	2
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Polio-myelitis .. ..	1	..	..	..	..	1	..	..	2
Puerperal Fever .. ..	..	..	..	..	..	..	..	..	..
Rubella .. ..	..	38(25)	..	69(3)	2(1)	..	..	..	100
Salmonella Infection .. ..	..	..	..	11(1)	..	..	..	..	1
Scarlet Fever .. ..	16(7)	20(15)	4(3)	3(2)	3(3)	1(1)	..	..	47
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	..	..	..	..	..	..	..
Trachoma .. ..	..	..	..	..	..	..	6	..	6
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis .. ..	17(9)	10(8)	21(2)	7(7)	6(3)	4(2)	3	..	68
Typhoid Fever .. ..	..	1(1)	..	..	..	..	..	..	1
Typhus (Flea, Mite and Tick-borne) .. ..	..	..	3	..	..	..	..	..	3
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

Case of Stress Incontinence", R. Zacharin; "Episiotomy and its Repair", T. W. Vorrath; "The Unexpected Salpingitis: Its Management", J. O'Donoghue; "Methods of Induction of Labour", G. Simpson; "The Clinical Features of Normal Menstruation", V. E. Hollyock. The afternoon sessions, under the chairmanship of J. W. Johnstone, will be as follows: "Carcinoma of the Body of the Uterus", Barry Kneale; "Fetal Distress in Labour", Ella Macknight; "Neonatal Distress", Kate Campbell; quiz session.

The fee for the course of lectures is £2 2s., which includes luncheon and afternoon tea. Early application facilitates catering arrangements. Enrolments should be made with the Secretary of the Royal College of Obstetricians and Gynaecologists, 8 LaTrobe Street, Melbourne.

#### THE POST-GRADUATE COMMITTEE IN MEDICINE OF THE UNIVERSITY OF ADELAIDE.

##### PÆDIATRIC REFRESHER WEEK.

The following is the detailed programme of the Pædiatric Refresher Week arranged by the Post-Graduate Committee of the University of Adelaide from September 2 to 7, 1957. Unless otherwise stated, the lectures will be held at the Adelaide Children's Hospital.

Monday, September 2: 9.15 a.m., registration; 9.30 a.m., skin demonstration, Dr. K. V. Sanderson, Dr. L. W. Linn, Dr. G. Donald; 11.15 a.m., "Muco-Viscidosis", Dr. M. T. Cockburn, Dr. J. S. Covernton, Mr. D. G. McKay; 2 p.m., "Anaesthetic Problems in Children", Dr. Mary Burnell, Dr. J. E. Barker, Dr. J. Stace; 3.45 p.m., "Staphylococcal Infections", Dr. J. E. McCartney, Dr. G. H. Solomon, Dr. M. C. Fowler, Dr. H. M. Douglas.

Tuesday, September 3: 9.30 a.m., "Common Orthopaedic Deformities", Mr. Neville Wilson, Mr. L. Bonnin, Mr. W. J. Betts; 11.15 a.m., clinico-pathological conference, Professor J. S. Robertson, Dr. M. C. Fowler; 2 p.m., surgical films; 8.30 p.m. (Verco Theatre), "Preventive Pædiatrics", Professor Lorimer Dods.

Wednesday, September 4: 9.30 a.m., "Assessment of the Mentally Backward Child", Professor Lorimer Dods, Dr. R. T. Binns, Dr. W. A. Didden, Dr. J. V. Gordon, Mr. T. A. R. Dinning, Miss Mary Smith; 2 p.m., demonstration of cases by resident staff, Mr. D. G. McKay, Professor Lorimer Dods.

Thursday, September 5: 9.30 a.m., "Jaundice in Infancy", Professor H. N. Robson, Dr. G. de Crespigny, Dr. W. W. Jolly, Dr. M. C. Fowler, Dr. D. Craven, Mr. Draper; 8.30 p.m. (Verco Theatre), "Pædiatrics with and without Hormones", Professor Lorimer Dods.

Friday, September 6: 9.30 a.m., "Cough in Childhood", Mr. H. D. Sutherland, Dr. E. B. Sims, Dr. R. von der Borch, Dr. P. Verco, Dr. C. T. Piper, Dr. Brown; 2 p.m., "Vomiting in the Neonatal Period", Dr. R. L. T. Grant, Mr. G. G. Wyllie, Dr. H. Rischbieth, Dr. W. G. Norman; 3.45 p.m., "Any Questions?", Dr. W. W. Jolly, Dr. C. Swan, Dr. R. N. C. Bickford, Dr. R. Walker, Mr. Downie.

Saturday, September 7: 9.30 a.m., "Ear, Nose and Throat Problems", Dr. P. Jay, Dr. J. Steele Scott; 10 a.m., "Eye Problems", Dr. M. Moore; 10.30 a.m., "Pædiatric Radiotherapy (Some Aspects)", Dr. C. Gurner.

The fee will be £5 5s. (mornings or afternoons only, £2 12s. 6d.).

Applications should be sent, with cheque, to the Medical Secretary not later than August 28, 1957.

#### Notice.

##### CLINICO-PATHOLOGICAL CONFERENCES AT SYDNEY HOSPITAL.

The clinico-pathological conferences at Sydney Hospital are normally held on the third Tuesday of each month. However, in September the meeting is to be held on the second Tuesday—i.e., on Tuesday, September 10, at 5 p.m. This is arranged to coincide with the Sydney Hospital Refresher Week.

#### Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Blanche, Paul Douglas, M.B., B.S., 1955 (Univ. Sydney), 9 Somerville Street, Arncliffe, New South Wales.

The undermentioned has applied for election as a member of the South Australian Branch of the British Medical Association:

Deland, Curtis George, M.B., B.S., 1954 (Univ. Adelaide).

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Rugless, Margaret, M.B., B.S., 1947 (Univ. Sydney); Speed, Isobel Ethel, M.B., B.S., 1956 (Univ. Adelaide); Fritsch, Mary Walda, M.B., B.S., 1954 (Univ. Adelaide); Halley, Peter, M.B., B.S., 1956 (Univ. Adelaide); Steward, Harrold Dunning, M.B., B.S., 1950 (Univ. Adelaide).

#### Deaths.

THE following death has been announced:

SOUTHWICK.—Michael Harold Southwick, on August 5, 1957, at Melbourne.

#### Diary for the Month.

AUG. 27.—New South Wales Branch, B.M.A.: Ethics Committee.

AUG. 28.—Victorian Branch, B.M.A.: Branch Council.

AUG. 29.—New South Wales Branch, B.M.A.: Branch Meeting.

SEPT. 3.—New South Wales Branch, B.M.A.: Organization and Science Committee.

#### Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, 88 L'Estrange Terrace, Kelvin Grove, Brisbane, W.1): All applicants for Queensland State Government Insurance Office positions are advised to communicate with the Honorary Secretary of the Branch before accepting posts.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

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